

## SEQUENCE LISTING

&lt;110&gt; Alitalo et al

&lt;120&gt; VEGF-C OR VEGF-D MATERIALS AND METHODS FOR OLIGODENDROCYTES

&lt;130&gt; 28967/39670A

&lt;160&gt; 38

&lt;170&gt; PatentIn version 3.0

&lt;210&gt; 1

&lt;211&gt; 2772

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(2772)

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35                      40                       45	

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His Pro Ser Glu Lys Cys Glu Trp Leu Ile Gln Ala Pro Asp Pro Tyr	
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Gln Arg Ile Met Ile Asn Phe Asn Pro His Phe Asp Leu Glu Asp Arg	
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Asp Cys Lys Tyr Asp Tyr Val Glu Val Phe Asp Gly Glu Asn Glu Asn	
85                      90                       95	

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Gly His Phe Arg Gly Lys Phe Cys Gly Lys Ile Ala Pro Pro Val	
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Val Ser Ser Gly Pro Phe Leu Phe Ile Lys Phe Val Ser Asp Tyr Glu	
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His Pro Ser Glu Lys Cys Glu Trp Leu Ile Gln Ala Pro Asp Pro Tyr  
50 55 60

Gln Arg Ile Met Ile Asn Phe Asn Pro His Phe Asp Leu Glu Asp Arg  
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Asp Cys Lys Tyr Asp Tyr Val Glu Val Phe Asp Gly Glu Asn Glu Asn  
85 90 95

Gly His Phe Arg Gly Lys Phe Cys Gly Lys Ile Ala Pro Pro Pro Val  
100 105 110

Val Ser Ser Gly Pro Phe Leu Phe Ile Lys Phe Val Ser Asp Tyr Glu  
115 120 125

Thr His Gly Ala Gly Phe Ser Ile Arg Tyr Glu Ile Phe Lys Arg Gly  
130 135 140

Pro Glu Cys Ser Gln Asn Tyr Thr Pro Ser Gly Val Ile Lys Ser  
145 150 155 160

Pro Gly Phe Pro Glu Lys Tyr Pro Asn Ser Leu Glu Cys Thr Tyr Ile  
165 170 175

Val Phe Ala Pro Lys Met Ser Glu Ile Ile Leu Glu Phe Glu Ser Phe  
180 185 190

Asp Leu Glu Pro Asp Ser Asn Pro Pro Gly Gly Met Phe Cys Arg Tyr  
195 200 205

Asp Arg Leu Glu Ile Trp Asp Gly Phe Pro Asp Val Gly Pro His Ile  
210 215 220

Gly Arg Tyr Cys Gly Gln Lys Thr Pro Gly Arg Ile Arg Ser Ser Ser  
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Gly Ile Leu Ser Met Val Phe Tyr Thr Asp Ser Ala Ile Ala Lys Glu  
245 250 255

Gly Phe Ser Ala Asn Tyr Ser Val Leu Gln Ser Ser Val Ser Glu Asp  
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Phe Lys Cys Met Glu Ala Leu Gly Met Glu Ser Gly Glu Ile His Ser  
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Arg Ser Arg Leu Asn Tyr Pro Glu Asn Gly Trp Thr Pro Gly Glu Asp  
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Ser Tyr Arg Glu Trp Ile Gln Val Asp Leu Gly Leu Leu Arg Phe Val  
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Thr Ala Val Gly Thr Gln Gly Ala Ile Ser Lys Glu Thr Lys Lys Lys  
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Tyr Tyr Val Lys Thr Tyr Lys Ile Asp Val Ser Ser Asn Gly Glu Asp  
355 360 365

Trp Ile Thr Ile Lys Glu Gly Asn Lys Pro Val Leu Phe Gln Gly Asn  
370 375 380

Thr Asn Pro Thr Asp Val Val Ala Val Phe Pro Lys Pro Leu Ile  
385 390 395 400

Thr Arg Phe Val Arg Ile Lys Pro Ala Thr Trp Glu Thr Gly Ile Ser  
405 410 415

Met Arg Phe Glu Val Tyr Gly Cys Lys Ile Thr Asp Tyr Pro Cys Ser  
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Gly Met Leu Gly Met Val Ser Gly Leu Ile Ser Asp Ser Gln Ile Thr  
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Ser Ser Asn Gln Gly Asp Arg Asn Trp Met Pro Glu Asn Ile Arg Leu  
450 455 460

Val Thr Ser Arg Ser Gly Trp Ala Leu Pro Pro Ala Pro His Ser Tyr  
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Ile Asn Glu Trp Leu Gln Ile Asp Leu Gly Glu Glu Lys Ile Val Arg  
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Gly Ile Ile Ile Gln Gly Gly Lys His Arg Glu Asn Lys Val Phe Met  
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Arg Lys Phe Lys Ile Gly Tyr Ser Asn Asn Gly Ser Asp Trp Lys Met  
515 520 525

Ile Met Asp Asp Ser Lys Arg Lys Ala Lys Ser Phe Glu Gly Asn Asn  
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Asn Tyr Asp Thr Pro Glu Leu Arg Thr Phe Pro Ala Leu Ser Thr Arg  
545 550 555 560

Phe Ile Arg Ile Tyr Pro Glu Arg Ala Thr His Gly Gly Leu Gly Leu  
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Arg Met Glu Leu Leu Gly Cys Glu Val Glu Ala Pro Thr Ala Gly Pro  
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Thr Thr Pro Asn Gly Asn Leu Val Asp Glu Cys Asp Asp Asp Gln Ala  
595 600 605

Asn Cys His Ser Gly Thr Gly Asp Asp Phe Gln Leu Thr Gly Gly Thr  
610 615 620

Thr Val Leu Ala Thr Glu Lys Pro Thr Val Ile Asp Ser Thr Ile Gln  
625 630 635 640

Ser Glu Phe Pro Thr Tyr Gly Phe Asn Cys Glu Phe Gly Trp Gly Ser  
645 650 655

His Lys Thr Phe Cys His Trp Glu His Asp Asn His Val Gln Leu Lys  
660 665 670

Trp Ser Val Leu Thr Ser Lys Thr Gly Pro Ile Gln Asp His Thr Gly  
675 680 685

Asp Gly Asn Phe Ile Tyr Ser Gln Ala Asp Glu Asn Gln Lys Gly Lys  
690 695 700

Val Ala Arg Leu Val Ser Pro Val Val Tyr Ser Gln Asn Ser Ala His  
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Cys Met Thr Phe Trp Tyr His Met Ser Gly Ser His Val Gly Thr Leu  
725 730 735

Arg Val Lys Leu Arg Tyr Gln Lys Pro Glu Glu Tyr Asp Gln Leu Val  
740 745 750

Trp Met Ala Ile Gly His Gln Gly Asp His Trp Lys Glu Gly Arg Val  
755 760 765

Leu Leu His Lys Ser Leu Lys Leu Tyr Gln Val Ile Phe Glu Gly Glu  
770 775 780

Ile Gly Lys Gly Asn Leu Gly Gly Ile Ala Val Asp Asp Ile Ser Ile  
785 790 795 800

Asn Asn His Ile Ser Gln Glu Asp Cys Ala Lys Pro Ala Asp Leu Asp  
805 810 815

Lys Lys Asn Pro Glu Ile Lys Ile Asp Glu Thr Gly Ser Thr Pro Gly  
820 825 830

Tyr Glu Gly Glu Gly Glu Gly Asp Lys Asn Ile Ser Arg Lys Pro Gly  
835 840 845

Asn Val Leu Lys Thr Leu Glu Pro Ile Leu Ile Thr Ile Ile Ala Met  
850 855 860

Ser Ala Leu Gly Val Leu Leu Gly Ala Val Cys Gly Val Val Leu Tyr  
865 870 875 880

Cys Ala Cys Trp His Asn Gly Met Ser Glu Arg Asn Leu Ser Ala Leu  
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Arg His Gln Val Arg Gly Gln Pro Asp Pro Pro Cys Gly Gly Arg Leu			
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aat tcc aaa gat gct ggc tat atc acc tct ccc ggt tac ccc cag gac			144
Asn Ser Lys Asp Ala Gly Tyr Ile Thr Ser Pro Gly Tyr Pro Gln Asp			
35	40	45	
tac ccc tcc cac cag aac tgc gag tgg att gtt tac gcc ccc gaa ccc			192
Tyr Pro Ser His Gln Asn Cys Glu Trp Ile Val Tyr Ala Pro Glu Pro			
50	55	60	
aac cag aag att gtc ctc aac ttc aac cct cac ttt gaa atc gag aag			240
Asn Gln Lys Ile Val Leu Asn Phe Asn Pro His Phe Glu Ile Glu Lys			
65	70	75	80
cac gac tgc aag tat gac ttt atc gag att cgg gat ggg gac agt gaa			288
His Asp Cys Lys Tyr Asp Phe Ile Glu Ile Arg Asp Gly Asp Ser Glu			
85	90	95	
tcc gca gac ctc ctg ggc aaa cac tgt ggg aac atc gcc ccg ccc acc			336
Ser Ala Asp Leu Leu Gly Lys His Cys Gly Asn Ile Ala Pro Pro Thr			
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atc atc tcc tcg ggc tcc atg ctc tac atc aag ttc acc tcc gac tac			384
Ile Ile Ser Ser Gly Ser Met Leu Tyr Ile Lys Phe Thr Ser Asp Tyr			
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Ala Arg Gln Gly Ala Gly Phe Ser Leu Arg Tyr Glu Ile Phe Lys Thr			
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ttt acc atc ctg gcc aaa ccc aag atg gag atc atc ctg cag ttc ctg			528
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cag gcc acg ggc ggc cgc ggg gtg gcg ctg cag gtg gtg cgg gaa gcc Gln Ala Thr Gly Arg Gly Val Ala Leu Gln Val Val Arg Glu Ala 725 730 735	2208
agc cag gag agc aag ttg ctg tgg gtc atc cgt gag gac cag ggc ggc Ser Gln Glu Ser Lys Leu Leu Trp Val Ile Arg Glu Asp Gln Gly Gly 740 745 750	2256

gag tgg aag cac ggg cgg atc atc ctg ccc agc tac gac atg gag tac Glu Trp Lys His Gly Arg Ile Ile Leu Pro Ser Tyr Asp Met Glu Tyr 755 760 765	2304
cag att gtg ttc gag gga gtg ata ggg aaa gga cgt tcc gga gag att Gln Ile Val Phe Glu Gly Val Ile Gly Lys Gly Arg Ser Gly Glu Ile 770 775 780	2352
gcc att gat gac att cgg ata agc act gat gtc cca ctg gag aac tgc Ala Ile Asp Asp Ile Arg Ile Ser Thr Asp Val Pro Leu Glu Asn Cys 785 790 795 800	2400
atg gaa ccc atc tcg gct ttt gca gtg gac atc cca gaa ata cat gag Met Glu Pro Ile Ser Ala Phe Ala Val Asp Ile Pro Glu Ile His Glu 805 810 815	2448
aga gaa gga tat gaa gat gaa att gat gat gaa tac gag gtg gac tgg Arg Glu Gly Tyr Glu Asp Glu Ile Asp Asp Glu Tyr Glu Val Asp Trp 820 825 830	2496
agc aat tct tct tct gca acc tca ggg tct ggc gcc ccc tcg acc gac Ser Asn Ser Ser Ala Thr Ser Gly Ser Gly Ala Pro Ser Thr Asp 835 840 845	2544
aaa gaa aag agc tgg ctg tac acc ctg gat ccc atc ctc atc acc atc Lys Glu Lys Ser Trp Leu Tyr Thr Leu Asp Pro Ile Leu Ile Thr Ile 850 855 860	2592
atc gcc atg agc tca ctg ggc gtc ctc ctg ggg gcc acc tgt gca ggc Ile Ala Met Ser Ser Leu Gly Val Leu Leu Gly Ala Thr Cys Ala Gly 865 870 875 880	2640
ctc ctg ctc tac tgc acc tgt tcc tac tcg ggc ctg agc tcc cga agc Leu Leu Leu Tyr Cys Thr Cys Ser Tyr Ser Gly Leu Ser Ser Arg Ser 885 890 895	2688
tgc acc aca ctg gag aac tac aac ttc gag ctc tac gat ggc ctt aag Cys Thr Thr Leu Glu Asn Tyr Asn Phe Glu Leu Tyr Asp Gly Leu Lys 900 905 910	2736
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35 40 45

Tyr Pro Ser His Gln Asn Cys Glu Trp Ile Val Tyr Ala Pro Glu Pro  
50 55 60

Asn Gln Lys Ile Val Leu Asn Phe Asn Pro His Phe Glu Ile Glu Lys  
65 70 75 80

His Asp Cys Lys Tyr Asp Phe Ile Glu Ile Arg Asp Gly Asp Ser Glu  
85 90 95

Ser Ala Asp Leu Leu Gly Lys His Cys Gly Asn Ile Ala Pro Pro Thr  
100 105 110

Ile Ile Ser Ser Gly Ser Met Leu Tyr Ile Lys Phe Thr Ser Asp Tyr  
115 120 125

Ala Arg Gln Gly Ala Gly Phe Ser Leu Arg Tyr Glu Ile Phe Lys Thr  
130 135 140

Gly Ser Glu Asp Cys Ser Lys Asn Phe Thr Ser Pro Asn Gly Thr Ile  
145 150 155 160

Glu Ser Pro Gly Phe Pro Glu Lys Tyr Pro His Asn Leu Asp Cys Thr  
165 170 175

Phe Thr Ile Leu Ala Lys Pro Lys Met Glu Ile Ile Leu Gln Phe Leu  
180 185 190

Ile Phe Asp Leu Glu His Asp Pro Leu Gln Val Gly Glu Gly Asp Cys  
195 200 205

Lys Tyr Asp Trp Leu Asp Ile Trp Asp Gly Ile Pro His Val Gly Pro  
210 215 220

Leu Ile Gly Lys Tyr Cys Gly Thr Lys Thr Pro Ser Glu Leu Arg Ser  
225 230 235 240

Ser Thr Gly Ile Leu Ser Leu Thr Phe His Thr Asp Met Ala Val Ala  
245 250 255

Lys Asp Gly Phe Ser Ala Arg Tyr Tyr Leu Val His Gln Glu Pro Leu  
260 265 270

Glu Asn Phe Gln Cys Asn Val Pro Leu Gly Met Glu Ser Gly Arg Ile  
275 280 285

Ala Asn Glu Gln Ile Ser Ala Ser Ser Thr Tyr Ser Asp Gly Arg Trp  
290 295 300

Thr Pro Gln Gln Ser Arg Leu His Gly Asp Asp Asn Gly Trp Thr Pro  
305 310 315 320

Asn Leu Asp Ser Asn Lys Glu Tyr Leu Gln Val Asp Leu Arg Phe Leu  
325 330 335

Thr Met Leu Thr Ala Ile Ala Thr Gln Gly Ala Ile Ser Arg Glu Thr  
340 345 350

Gln Asn Gly Tyr Tyr Val Lys Ser Tyr Lys Leu Glu Val Ser Thr Asn  
355 360 365

Gly Glu Asp Trp Met Val Tyr Arg His Gly Lys Asn His Lys Val Phe  
370 375 380

Gln Ala Asn Asn Asp Ala Thr Glu Val Val Leu Asn Lys Leu His Ala  
385 390 395 400

Pro Leu Leu Thr Arg Phe Val Arg Ile Arg Pro Gln Thr Trp His Ser  
405 410 415

Gly Ile Ala Leu Arg Leu Glu Leu Phe Gly Cys Arg Val Thr Asp Ala  
420 425 430

Pro Cys Ser Asn Met Leu Gly Met Leu Ser Gly Leu Ile Ala Asp Ser  
435 440 445

Gln Ile Ser Ala Ser Ser Thr Gln Glu Tyr Leu Trp Ser Pro Ser Ala  
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Ala Arg Leu Val Ser Ser Arg Ser Gly Trp Phe Pro Arg Ile Pro Gln  
465 470 475 480

Ala Gln Pro Gly Glu Glu Trp Leu Gln Val Asp Leu Gly Thr Pro Lys  
485 490 495

Thr Val Lys Gly Val Ile Ile Gln Gly Ala Arg Gly Gly Asp Ser Ile  
500 505 510

Thr Ala Val Glu Ala Arg Ala Phe Val Arg Lys Phe Lys Val Ser Tyr  
515 520 525

Ser Leu Asn Gly Lys Asp Trp Glu Tyr Ile Gln Asp Pro Arg Thr Gln  
530 535 540

Gln Pro Lys Leu Phe Glu Gly Asn Met His Tyr Asp Thr Pro Asp Ile  
545 550 555 560

Arg Arg Phe Asp Pro Ile Pro Ala Gln Tyr Val Arg Val Tyr Pro Glu  
565 570 575

Arg Trp Ser Pro Ala Gly Ile Gly Met Arg Leu Glu Val Leu Gly Cys  
580 585 590

Asp Trp Thr Asp Ser Lys Pro Thr Val Lys Thr Leu Gly Pro Thr Val  
595 600 605

Lys Ser Glu Glu Thr Thr Pro Tyr Pro Thr Glu Glu Glu Ala Thr  
610 615 620

Glu Cys Gly Glu Asn Cys Ser Phe Glu Asp Asp Lys Asp Leu Gln Leu  
625 630 635 640

Pro Ser Gly Phe Asn Cys Asn Phe Asp Phe Leu Glu Glu Pro Cys Gly  
645 650 655

Trp Met Tyr Asp His Ala Lys Trp Leu Arg Thr Thr Trp Ala Ser Ser  
660 665 670

Ser Ser Pro Asn Asp Arg Thr Phe Pro Asp Asp Arg Asn Phe Leu Arg  
675 680 685

Leu Gln Ser Asp Ser Gln Arg Glu Gly Gln Tyr Ala Arg Leu Ile Ser  
690 695 700

Pro Pro Val His Leu Pro Arg Ser Pro Val Cys Met Glu Phe Gln Tyr  
705 710 715 720

Gln Ala Thr Gly Arg Gly Val Ala Leu Gln Val Val Arg Glu Ala  
725 730 735

Ser Gln Glu Ser Lys Leu Leu Trp Val Ile Arg Glu Asp Gln Gly Gly  
740 745 750

Glu Trp Lys His Gly Arg Ile Ile Leu Pro Ser Tyr Asp Met Glu Tyr  
755 760 765

Gln Ile Val Phe Glu Gly Val Ile Gly Lys Gly Arg Ser Gly Glu Ile  
770 775 780

Ala Ile Asp Asp Ile Arg Ile Ser Thr Asp Val Pro Leu Glu Asn Cys  
785 790 795 800

Met Glu Pro Ile Ser Ala Phe Ala Val Asp Ile Pro Glu Ile His Glu  
805 810 815

Arg Glu Gly Tyr Glu Asp Glu Ile Asp Asp Glu Tyr Glu Val Asp Trp  
 820 825 830

Ser Asn Ser Ser Ser Ala Thr Ser Gly Ser Gly Ala Pro Ser Thr Asp  
 835 840 845

Lys Glu Lys Ser Trp Leu Tyr Thr Leu Asp Pro Ile Leu Ile Thr Ile  
 850 855 860

Ile Ala Met Ser Ser Leu Gly Val Leu Leu Gly Ala Thr Cys Ala Gly  
 865 870 875 880

Leu Leu Leu Tyr Cys Thr Cys Ser Tyr Ser Gly Leu Ser Ser Arg Ser  
 885 890 895

Cys Thr Thr Leu Glu Asn Tyr Asn Phe Glu Leu Tyr Asp Gly Leu Lys  
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His Lys Val Lys Met Asn His Gln Lys Cys Cys Ser Glu Ala  
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gctaaatgac aggtatgcagg cgacttgaga cacaaaaaga gaagcgccttc tcgcgaattc	180
aggcatttgcc tcgcccctag cttccccgc caagaccgc tgaggattt atggttctta	240
ggcggactta agagcgtttc ggattgttaa gattatcggt tgctgggttt tcgtccgcgc	300
aatcgtgttc tcctgcggct gcctggggac tggcttggcg aaggagg atg gag agg	356
Met Glu Arg	
1	
ggg ctg ccg ttg ctg tgc gcc acg ctc gcc ctt gcc ctc gcc ctg gcg	404
Gly Leu Pro Leu Leu Cys Ala Thr Leu Ala Leu Ala Leu Ala Leu Ala	
5 10 15	

ggc gct ttc cgc agc gac aaa tgt ggc ggg acc ata aaa atc gaa aac Gly Ala Phe Arg Ser Asp Lys Cys Gly Thr Ile Lys Ile Glu Asn 20 25 30 35	452
cca ggg tac ctc aca tct ccc ggt tac cct cat tct tac cat cca agt Pro Gly Tyr Leu Thr Ser Pro Gly Tyr Pro His Ser Tyr His Pro Ser 40 45 50	500
gag aag tgt gaa tgg cta atc caa gct ccg gaa ccc tac cag aga atc Glu Lys Cys Glu Trp Leu Ile Gln Ala Pro Glu Pro Tyr Gln Arg Ile 55 60 65	548
ata atc aac ttc aac cca cat ttc gat ttg gag gac aga gac tgc aag Ile Ile Asn Phe Asn Pro His Phe Asp Leu Glu Asp Arg Asp Cys Lys 70 75 80	596
tat gac tac gtg gaa gta att 'gat ggg gag aat gaa ggc ggc cgc ctg Tyr Asp Tyr Val Glu Val Ile Asp Gly Glu Asn Glu Gly Arg Leu 85 90 95	644
tgg ggg aag ttc tgt ggg aag att gca cct tct cct gtg gtg tct tca Trp Gly Lys Phe Cys Gly Lys Ile Ala Pro Ser Pro Val Val Ser Ser 100 105 110 115	692
ggg ccc ttt ctc ttc atc aaa ttt gtc tct gac tat gag aca cat ggg Gly Pro Phe Leu Phe Ile Lys Phe Val Ser Asp Tyr Glu Thr His Gly 120 125 130	740
gca ggg ttt tcc atc cgc tat gaa atc ttc aag aga ggg ccc gaa tgt Ala Gly Phe Ser Ile Arg Tyr Glu Ile Phe Lys Arg Gly Pro Glu Cys 135 140 145	788
tct cag aac tat aca gca cct act gga gtg ata aag tcc cct ggg ttc Ser Gln Asn Tyr Thr Ala Pro Thr Gly Val Ile Lys Ser Pro Gly Phe 150 155 160	836
cct gaa aaa tac ccc aac tgc ttg gag tgc acc tac atc atc ttt gca Pro Glu Lys Tyr Pro Asn Cys Leu Glu Cys Thr Tyr Ile Ile Phe Ala 165 170 175	884
cca aag atg tct gag ata atc ctg gag ttt gaa agt ttt gac ctg gag Pro Lys Met Ser Glu Ile Ile Leu Glu Phe Glu Ser Phe Asp Leu Glu 180 185 190 195	932
caa gac tcg aat cct ccc gga gga atg ttc tgt cgc tat gac cgg ctg Gln Asp Ser Asn Pro Pro Gly Gly Met Phe Cys Arg Tyr Asp Arg Leu 200 205 210	980
gag atc tgg gat gga ttc cct gaa gtt ggc cct cac att ggg cgt tat Glu Ile Trp Asp Gly Phe Pro Glu Val Gly Pro His Ile Gly Arg Tyr 215 220 225	1028
tgt ggg cag aaa act cct ggc cgg atc cgc tcc tct tca ggc gtt cta Cys Gly Gln Lys Thr Pro Gly Arg Ile Arg Ser Ser Gly Val Leu 230 235 240	1076
tcc atg gtc ttt tac act gac agc gca ata gca aaa gaa ggt ttc tca Ser Met Val Phe Tyr Thr Asp Ser Ala Ile Ala Lys Glu Gly Phe Ser 245 250 255	1124
gcc aac tac agt gtg cta cag agc agc atc tct gaa gat ttt aag tgt Ala Asn Tyr Ser Val Leu Gln Ser Ser Ile Ser Glu Asp Phe Lys Cys 260 265 270 275	1172

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atg gag gct ctg ggc atg gaa tct gga gag atc cat tct gat cag atc Met Glu Ala Leu Gly Met Glu Ser Gly Glu Ile His Ser Asp Gln Ile 280	285	290	1220
act gca tct tca cag tat ggt acc aac tgg tct gta gag cgc tcc cgc Thr Ala Ser Ser Gln Tyr Gly Thr Asn Trp Ser Val Glu Arg Ser Arg 295	300	305	1268
ctg aac tac cct gaa aat ggg tgg act cca gga gaa gac tcc tac aag Leu Asn Tyr Pro Glu Asn Gly Trp Thr Pro Gly Glu Asp Ser Tyr Lys 310	315	320	1316
gag tgg atc cag gtg gac ttg ggc ctc ctg cga ttc gtt act gct gta Glu Trp Ile Gln Val Asp Leu Gly Leu Arg Phe Val Thr Ala Val 325	330	335	1364
ggg aca cag ggt gcc att tcc aag gaa acc aag aag aaa tat tat gtc Gly Thr Gln Gly Ala Ile Ser Lys Glu Thr Lys Lys Tyr Tyr Val 340	345	350	1412
aag act tac aga gta gac atc agc tcc aac gga gag gac tgg atc tcc Lys Thr Tyr Arg Val Asp Ile Ser Ser Asn Gly Glu Asp Trp Ile Ser 360	365	370	1460
ctg aaa gag gga aat aaa gcc att atc ttt cag gga aac acc aac ccc Leu Lys Glu Gly Asn Lys Ala Ile Ile Phe Gln Gly Asn Thr Asn Pro 375	380	385	1508
aca gat gtt gtc tta gga gtt ttc tcc aaa cca ctg ata act cga ttt Thr Asp Val Val Leu Gly Val Phe Ser Lys Pro Leu Ile Thr Arg Phe 390	395	400	1556
gtc cga atc aaa cct gta tcc tgg gaa act ggt ata tct atg aga ttt Val Arg Ile Lys Pro Val Ser Trp Glu Thr Gly Ile Ser Met Arg Phe 405	410	415	1604
gaa gtt tat ggc tgc aag ata aca gat tat cct tgc tct gga atg ttg Glu Val Tyr Gly Cys Lys Ile Thr Asp Tyr Pro Cys Ser Gly Met Leu 420	425	430	1652
ggc atg gtg tct gga ctt att tca gac tcc cag att aca gca tcc aat Gly Met Val Ser Gly Leu Ile Ser Asp Ser Gln Ile Thr Ala Ser Asn 440	445	450	1700
caa gcc gac agg aat tgg atg cca gaa aac atc cgt ctg gtg acc agt Gln Ala Asp Arg Asn Trp Met Pro Glu Asn Ile Arg Leu Val Thr Ser 455	460	465	1748
cgt acc ggc tgg gca ctg cca ccc tca ccc cac cca tac acc aat gaa Arg Thr Gly Trp Ala Leu Pro Pro Ser Pro His Pro Tyr Thr Asn Glu 470	475	480	1796
tgg ctc caa gtg gac ctg gga gat gag aag ata gta aga ggt gtc atc Trp Leu Gln Val Asp Leu Gly Asp Glu Lys Ile Val Arg Gly Val Ile 485	490	495	1844
att cag ggt ggg aag cac cga gaa aac aag gtg ttc atg agg aag ttc Ile Gln Gly Gly Lys His Arg Glu Asn Lys Val Phe Met Arg Lys Phe 500	505	510	1892
aag atc gcc tat agt aac aat ggc tct gac tgg aaa act atc atg gat Lys Ile Ala Tyr Ser Asn Asn Gly Ser Asp Trp Lys Thr Ile Met Asp 520	525	530	1940

gac agc aag cgc aag gct aag tcg ttc gaa ggc aac aac aac tat gac Asp Ser Lys Arg Lys Ala Lys Ser Phe Glu Gly Asn Asn Asn Tyr Asp 535 540 545	1988
aca cct gag ctt cgg acg ttt tca cct ctc tcc aca agg ttc atc agg Thr Pro Glu Leu Arg Thr Phe Ser Pro Leu Ser Thr Arg Phe Ile Arg 550 555 560	2036
atc tac cct gag aga gcc aca cac agt ggg ctt ggg ctg agg atg gag Ile Tyr Pro Glu Arg Ala Thr His Ser Gly Leu Gly Leu Arg Met Glu 565 570 575	2084
cta ctg ggc tgt gaa gtg gaa gca cct aca gct gga cca acc aca ccc Leu Leu Gly Cys Glu Val Glu Ala Pro Thr Ala Gly Pro Thr Thr Pro 580 585 590 595	2132
aat ggg aac cca gtg cat gag tgt gac gac gac cag gcc aac tgc cac Asn Gly Asn Pro Val His Glu Cys Asp Asp Gln Ala Asn Cys His 600 605 610	2180
agt ggc aca ggt gat gac ttc cag ctc aca gga ggc acc act gtc ctg Ser Gly Thr Gly Asp Asp Phe Gln Leu Thr Gly Thr Thr Val Leu 615 620 625	2228
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ccg aca tac ggt ttt aac tgc gag ttt ggc tgg ggc tct cac aag aca Pro Thr Tyr Gly Phe Asn Cys Glu Phe Gly Trp Gly Ser His Lys Thr 645 650 655	2324.
ttc tgc cac tgg gag cat gac agc cat gca cag ctc agg tgg agt gtg Phe Cys His Trp Glu His Asp Ser His Ala Gln Leu Arg Trp Ser Val 660 665 670 675	2372.
ctg acc agc aag aca ggg ccg att cag gac cat aca gga gat ggc aac Leu Thr Ser Lys Thr Gly Pro Ile Gln Asp His Thr Gly Asp Gly Asn 680 685 690	2420
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gaa ggg gaa ggt gac aag aac atc tcc agg aag cca ggc aat gtg ctt Glu Gly Glu Gly Asp Lys Asn Ile Ser Arg Lys Pro Gly Asn Val Leu 840 845 850	2900
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tgg cac aat ggg atg tca gaa agg aac cta tct gcc ctg gag aac tat Trp His Asn Gly Met Ser Glu Arg Asn Leu Ser Ala Leu Glu Asn Tyr 885 890 895	3044
aac ttt gaa ctt gtg gat ggt gta aag ttg aaa aaa gat aaa ctg aac Asn Phe Glu Leu Val Asp Gly Val Lys Leu Lys Asp Lys Leu Asn 900 905 910 915	3092
cca cag agt aat tac tca gag gcg tga aggcacggag ctggaggaa Pro Gln Ser Asn Tyr Ser Glu Ala 920	3139
caagggagga gcacggcagg agaacagggtg gaggcatggg gactctgtta ctctgcttc actgtaaagct ggaaaggcg gggactctgt tactccgtt tcactgtaaag ctcggaaagg catccacgat gccatgccag gctttctca ggagctcaa tgagcgtcac ctacagacac aagcaggtga ctgcggtaac aacaggaatc atgtacaagc ctgctttctt ctcttggtt catttggta atcagaagcc atttgagacc aagtgtgact gacttcatgg ttcatcctac tagccccctt tttcctctc tttctcctta ccctgtggtg gattcttctc ggaaactgca aaatccaaga tgctggcact aggcgttatt cagtgccc ttttcatgga catgtgaccc gtagcccaagt gcccagagca tattatcata accacattc aggggacgcc aacgtccatc cacctttgca tcgcttacactg cagcgagcac agg	3199 3259 3319 3379 3439 3499 3559 3619 3652

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35 40 45

His Pro Ser Glu Lys Cys Glu Trp Leu Ile Gln Ala Pro Glu Pro Tyr  
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Gln Arg Ile Ile Ile Asn Phe Asn Pro His Phe Asp Leu Glu Asp Arg  
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Asp Cys Lys Tyr Asp Tyr Val Glu Val Ile Asp Gly Glu Asn Glu Gly  
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Gly Arg Leu Trp Gly Lys Phe Cys Gly Lys Ile Ala Pro Ser Pro Val  
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Val Ser Ser Gly Pro Phe Leu Phe Ile Lys Phe Val Ser Asp Tyr Glu  
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Thr His Gly Ala Gly Phe Ser Ile Arg Tyr Glu Ile Phe Lys Arg Gly  
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Pro Glu Cys Ser Gln Asn Tyr Thr Ala Pro Thr Gly Val Ile Lys Ser  
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Pro Gly Phe Pro Glu Lys Tyr Pro Asn Cys Leu Glu Cys Thr Tyr Ile  
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Ile Phe Ala Pro Lys Met Ser Glu Ile Ile Leu Glu Phe Glu Ser Phe  
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Asp Leu Glu Gln Asp Ser Asn Pro Pro Gly Gly Met Phe Cys Arg Tyr  
195 200 205

Asp Arg Leu Glu Ile Trp Asp Gly Phe Pro Glu Val Gly Pro His Ile  
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Gly Arg Tyr Cys Gly Gln Lys Thr Pro Gly Arg Ile Arg Ser Ser Ser  
225 230 235 240

Gly Val Leu Ser Met Val Phe Tyr Thr Asp Ser Ala Ile Ala Lys Glu  
 245 250 255

Gly Phe Ser Ala Asn Tyr Ser Val Leu Gln Ser Ser Ile Ser Glu Asp  
 260 265 270

Phe Lys Cys Met Glu Ala Leu Gly Met Glu Ser Gly Glu Ile His Ser  
 275 280 285

Asp Gln Ile Thr Ala Ser Ser Gln Tyr Gly Thr Asn Trp Ser Val Glu  
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Arg Ser Arg Leu Asn Tyr Pro Glu Asn Gly Trp Thr Pro Gly Glu Asp  
 305 310 315 320

Ser Tyr Lys Glu Trp Ile Gln Val Asp Leu Gly Leu Leu Arg Phe Val  
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Thr Ala Val Gly Thr Gln Gly Ala Ile Ser Lys Glu Thr Lys Lys Lys  
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Tyr Tyr Val Lys Thr Tyr Arg Val Asp Ile Ser Ser Asn Gly Glu Asp  
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Trp Ile Ser Leu Lys Glu Gly Asn Lys Ala Ile Ile Phe Gln Gly Asn  
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Thr Arg Phe Val Arg Ile Lys Pro Val Ser Trp Glu Thr Gly Ile Ser  
 405 410 415

Met Arg Phe Glu Val Tyr Gly Cys Lys Ile Thr Asp Tyr Pro Cys Ser  
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Gly Met Leu Gly Met Val Ser Gly Leu Ile Ser Asp Ser Gln Ile Thr  
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Ala Ser Asn Gln Ala Asp Arg Asn Trp Met Pro Glu Asn Ile Arg Leu  
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Val Thr Ser Arg Thr Gly Trp Ala Leu Pro Pro Ser Pro His Pro Tyr  
 465 470 475 480

Thr Asn Glu Trp Leu Gln Val Asp Leu Gly Asp Glu Lys Ile Val Arg  
 485 490 495

Gly Val Ile Ile Gln Gly Gly Lys His Arg Glu Asn Lys Val Phe Met  
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Arg Lys Phe Lys Ile Ala Tyr Ser Asn Asn Gly Ser Asp Trp Lys Thr  
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Ile Met Asp Asp Ser Lys Arg Lys Ala Lys Ser Phe Glu Gly Asn Asn  
 530 535 540

Asn Tyr Asp Thr Pro Glu Leu Arg Thr Phe Ser Pro Leu Ser Thr Arg  
 545 550 555 560

Phe Ile Arg Ile Tyr Pro Glu Arg Ala Thr His Ser Gly Leu Gly Leu  
 565 570 575

Arg Met Glu Leu Leu Gly Cys Glu Val Glu Ala Pro Thr Ala Gly Pro  
 580 585 590

Thr Thr Pro Asn Gly Asn Pro Val His Glu Cys Asp Asp Asp Gln Ala  
 595 600 605

Asn Cys His Ser Gly Thr Gly Asp Asp Phe Gln Leu Thr Gly Gly Thr  
 610 615 620

Thr Val Leu Ala Thr Glu Lys Pro Thr Ile Ile Asp Ser Thr Ile Gln  
 625 630 635 640

Ser Glu Phe Pro Thr Tyr Gly Phe Asn Cys Glu Phe Gly Trp Gly Ser  
 645 650 655

His Lys Thr Phe Cys His Trp Glu His Asp Ser His Ala Gln Leu Arg  
 660 665 670

Trp Ser Val Leu Thr Ser Lys Thr Gly Pro Ile Gln Asp His Thr Gly  
 675 680 685

Asp Gly Asn Phe Ile Tyr Ser Gln Ala Asp Glu Asn Gln Lys Gly Lys  
 690 695 700

Val Ala Arg Leu Val Ser Pro Val Val Tyr Ser Gln Ser Ser Ala His  
 705 710 715 720

Cys Met Thr Phe Trp Tyr His Met Ser Gly Ser His Val Gly Thr Leu  
 725 730 735

Arg Val Lys Leu Arg Tyr Gln Lys Pro Glu Glu Tyr Asp Gln Leu Val  
 740 745 750

Trp Met Val Val Gly His Gln Gly Asp His Trp Lys Glu Gly Arg Val  
 755 760 765

Leu Leu His Lys Ser Leu Lys Leu Tyr Gln Val Ile Phe Glu Gly Glu  
 770 775 780

Ile Gly Lys Gly Asn Leu Gly Gly Ile Ala Val Asp Asp Ile Ser Ile  
 785 790 795 800

Asn Asn His Ile Ser Gln Glu Asp Cys Ala Lys Pro Thr Asp Leu Asp  
 805 810 815

Lys Lys Asn Thr Glu Ile Lys Ile Asp Glu Thr Gly Ser Thr Pro Gly  
 820 825 830

Tyr Glu Gly Glu Gly Asp Lys Asn Ile Ser Arg Lys Pro Gly  
 835 840 845

Asn Val Leu Lys Thr Leu Asp Pro Ile Leu Ile Thr Ile Ile Ala Met  
 850 855 860

Ser Ala Leu Gly Val Leu Leu Gly Ala Val Cys Gly Val Val Leu Tyr  
 865 870 875 880

Cys Ala Cys Trp His Asn Gly Met Ser Glu Arg Asn Leu Ser Ala Leu  
 885 890 895

Glu Asn Tyr Asn Phe Glu Leu Val Asp Gly Val Lys Leu Lys Lys Asp  
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caagagctat ctcctatgag gtggagatat tccagcaaga ataaaggtga agacagactg	420
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10                              15                              20                              25	
cca ccc tgc gga ggt cgg ccg aat tcc aaa gat gct ggc tac atc act Pro Pro Cys Gly Gly Arg Pro Asn Ser Lys Asp Ala Gly Tyr Ile Thr	689
30                              35                              40	
tcc cca ggc tac ccc cag gac tat ccc tcc cac cag aac tgt gag tgg Ser Pro Gly Tyr Pro Gln Asp Tyr Pro Ser His Gln Asn Cys Glu Trp	737
45                              50                              55	
att gtc tac gcc ccc gaa ccc aac cag aag att gtt ctc aac ttc aac Ile Val Tyr Ala Pro Glu Pro Asn Gln Lys Ile Val Leu Asn Phe Asn	785
60                              65                              70	
cct cac ttt gaa atc gag aaa cac gac tgc aag tat gac ttc att gag Pro His Phe Glu Ile Glu His Asp Cys Lys Tyr Asp Phe Ile Glu	833
75                              80                              85	
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90                              95                              100                              105	
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125                              130                              135	
cgc tat gag atc ttc aaa aca ggc tct gaa gat tgt tcc aag aac ttt Arg Tyr Glu Ile Phe Lys Thr Gly Ser Glu Asp Cys Ser Lys Asn Phe	1025
140                              145                              150	
aca agc ccc aat ggg acc att gaa tct cca ggg ttt cca gag aag tat Thr Ser Pro Asn Gly Thr Ile Glu Ser Pro Gly Phe Pro Glu Lys Tyr	1073
155                              160                              165	
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170                              175                              180                              185	
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190                              195                              200	

caa gtg ggg gaa gga gac tgt aaa tat gac tgg ctg gac atc tgg gat Gln Val Gly Glu Gly Asp Cys Lys Tyr Asp Trp Leu Asp Ile Trp Asp 205	210	215	1217	
ggc att cca cat gtt gga cct ctg att ggc aag tac tgt ggg acg aaa Gly Ile Pro His Val Gly Pro Leu Ile Gly Lys Tyr Cys Gly Thr Lys 220	225	230	1265	
aca ccc tcc aaa ctc cgc tcg tcc acg ggg atc ctc tcc ttg acc ttt Thr Pro Ser Lys Leu Arg Ser Ser Thr Gly Ile Leu Ser Leu Thr Phe 235	240	245	1313	
cac acg gac atg gca gtg gcc aag gat ggc ttc tcc gca cgt tac tat His Thr Asp Met Ala Val Ala Lys Asp Gly Phe Ser Ala Arg Tyr Tyr 250	255	260	265	1361
ttg atc cac cag gag cca cct gag aat ttt cag tgc aat gtc cct ttg Leu Ile His Gln Glu Pro Pro Glu Asn Phe Gln Cys Asn Val Pro Leu 270	275	280	1409	
gga atg gag tct ggc cgg att gct aat gaa cag atc agt gcc tcc tcc Gly Met Glu Ser Gly Arg Ile Ala Asn Glu Gln Ile Ser Ala Ser Ser 285	290	295	1457	
acc ttc tct gat ggg agg tgg act cct caa cag agc cgg ctc cat ggt Thr Phe Ser Asp Gly Arg Trp Thr Pro Gln Gln Ser Arg Leu His Gly 300	305	310	1505	
gat gac aat ggc tgg aca ccc aat ttg gat tcc aac aag gag tat ctc Asp Asp Asn Gly Trp Thr Pro Asn Leu Asp Ser Asn Lys Glu Tyr Leu 315	320	325	1553	
cag gtg gac ctg cgc ttc cta acc atg ctc aca gcc att gca aca cag Gln Val Asp Leu Arg Phe Leu Thr Met Leu Thr Ala Ile Ala Thr Gln 330	335	340	345	1601
gga gcc att tcc agg gaa acc cag aaa ggc tac tac gtc aaa tcg tac Gly Ala Ile Ser Arg Glu Thr Gln Lys Gly Tyr Tyr Val Lys Ser Tyr 350	355	360	1649	
aag ctg gaa gtc agc aca aat ggt gaa gat tgg atg gtc tac cgg cat Lys Leu Glu Val Ser Thr Asn Gly Glu Asp Trp Met Val Tyr Arg His 365	370	375	1697	
ggc aaa aac cac aag ata ttc caa gcg aac aat gat gcg acc gag gtg Gly Lys Asn His Lys Ile Phe Gln Ala Asn Asn Asp Ala Thr Glu Val 380	385	390	1745	
gtg cta aac aag ctc cac atg cca ctg ctg act cgg ttc atc agg atc Val Leu Asn Lys Leu His Met Pro Leu Leu Thr Arg Phe Ile Arg Ile 395	400	405	1793	
cgc ccg cag acg tgg cat ttg ggc att gcc ctt cgc ctg gag ctc ttt Arg Pro Gln Thr Trp His Leu Gly Ile Ala Leu Arg Leu Glu Leu Phe 410	415	420	425	1841
ggc tgc cgg gtc aca gat gca ccc tgc tcc aac atg ctg ggg atg ctc Gly Cys Arg Val Thr Asp Ala Pro Cys Ser Asn Met Leu Gly Met Leu 430	435	440	1889	
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tac ctc tgg agc ccc agt gct gcc cgc ctg gtt agt agc cgc tct ggc Tyr Leu Trp Ser Pro Ser Ala Ala Arg Leu Val Ser Ser Arg Ser Gly 460 465 470	1985
tgg ttt cct cgg aac cct caa gcc cag cca ggt gaa gaa tgg ctt cag Trp Phe Pro Arg Asn Pro Gln Ala Gln Pro Gly Glu Glu Trp Leu Gln 475 480 485	2033.
gta gac ctg ggg aca ccc aag aca gtg aaa ggg gtc atc atc cag gga Val Asp Leu Gly Thr Pro Lys Thr Val Lys Gly Val Ile Ile Gln Gly 490 495 500 505	2081
gcc cga gga gga gac agc atc act gcc gtg gaa gcc agg gcg ttt gta Ala Arg Gly Gly Asp Ser Ile Thr Ala Val Glu Ala Arg Ala Phe Val 510 515 520	2129
cgc aag ttc aaa gtc tcc tac agc cta aat ggc aag gac tgg gaa tat Arg Lys Phe Lys Val Ser Tyr Ser Leu Asn Gly Lys Asp Trp Glu Tyr 525 530 535	2177
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ccc atg gat gag gat gcc acc gag tgt ggg gaa aac tgc agc ttt gag Pro Met Asp Glu Asp Ala Thr Glu Cys Gly Glu Asn Cys Ser Phe Glu 620 625 630	2465
gat gac aaa gat ttg caa ctt cct tca gga ttc aac tgc aac ttt gat Asp Asp Lys Asp Leu Gln Leu Pro Ser Gly Phe Asn Cys Asn Phe Asp 635 640 645	2513
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cgg agc acg tgg atc agc agc gct aac ccc aat gac aga aca ttt cca Arg Ser Thr Trp Ile Ser Ser Ala Asn Pro Asn Asp Arg Thr Phe Pro 670 675 680	2609
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cag tac ggg cgg ctc atc agc cca ccg gtg cac ctg ccc cga agc cct Gln Tyr Gly Arg Leu Ile Ser Pro Pro Val His Leu Pro Arg Ser Pro 700 705 710	2705

gtg tgc atg gag ttc cag tac caa gcc atg ggc ggc cac ggg gtg gca Val Cys Met Glu Phe Gln Tyr Gln Ala Met Gly Gly His Gly Val Ala 715 720 725	2753
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gat ccc att ctg atc acc atc atc gcc atg agc tgc ctg ggg gtc ctg Asp Pro Ile Leu Ile Thr Ile Ile Ala Met Ser Ser Leu Gly Val Leu 860 865 870	3185
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tcg ggt ctg agt tcg agg agc tgc acc aca ctg gag aac tac aac ttt Ser Gly Leu Ser Arg Ser Cys Thr Thr Leu Glu Asn Tyr Asn Phe 890 895 900 905	3281
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&lt;211&gt; 926

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 8

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									20	25				30	

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									35	40				45	

Tyr	Pro	Ser	His	Gln	Asn	Cys	Glu	Trp	Ile	Val	Tyr	Ala	Pro	Glu	Pro
									50	55				60	

Asn Gln Lys Ile Val Leu Asn Phe Asn Pro His Phe Glu Ile Glu Lys  
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His Asp Cys Lys Tyr Asp Phe Ile Glu Ile Arg Asp Gly Asp Ser Glu  
85 90 95

Ser Ala Asp Leu Leu Gly Lys His Cys Gly Asn Ile Ala Pro Pro Thr  
100 105 110

Ile Ile Ser Ser Gly Ser Val Leu Tyr Ile Lys Phe Thr Ser Asp Tyr  
115 120 125

Ala Arg Gln Gly Ala Gly Phe Ser Leu Arg Tyr Glu Ile Phe Lys Thr  
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Gly Ser Glu Asp Cys Ser Lys Asn Phe Thr Ser Pro Asn Gly Thr Ile  
145 150 155 160

Glu Ser Pro Gly Phe Pro Glu Lys Tyr Pro His Asn Leu Asp Cys Thr  
165 170 175

Phe Thr Ile Leu Ala Lys Pro Arg Met Glu Ile Ile Leu Gln Phe Leu  
180 185 190

Thr Phe Asp Leu Glu His Asp Pro Leu Gln Val Gly Glu Gly Asp Cys  
195 200 205

Lys Tyr Asp Trp Leu Asp Ile Trp Asp Gly Ile Pro His Val Gly Pro  
210 215 220

Leu Ile Gly Lys Tyr Cys Gly Thr Lys Thr Pro Ser Lys Leu Arg Ser  
225 230 235 240

Ser Thr Gly Ile Leu Ser Leu Thr Phe His Thr Asp Met Ala Val Ala  
245 250 255

Lys Asp Gly Phe Ser Ala Arg Tyr Tyr Leu Ile His Gln Glu Pro Pro  
260 265 270

Glu Asn Phe Gln Cys Asn Val Pro Leu Gly Met Glu Ser Gly Arg Ile  
275 280 285

Ala Asn Glu Gln Ile Ser Ala Ser Ser Thr Phe Ser Asp Gly Arg Trp  
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Thr Pro Gln Gln Ser Arg Leu His Gly Asp Asp Asn Gly Trp Thr Pro  
305 310 315 320

Asn Leu Asp Ser Asn Lys Glu Tyr Leu Gln Val Asp Leu Arg Phe Leu  
325 330 335

Thr Met Leu Thr Ala Ile Ala Thr Gln Gly Ala Ile Ser Arg Glu Thr  
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Gln Lys Gly Tyr Tyr Val Lys Ser Tyr Lys Leu Glu Val Ser Thr Asn  
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Gly Glu Asp Trp Met Val Tyr Arg His Gly Lys Asn His Lys Ile Phe  
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Gln Ala Asn Asn Asp Ala Thr Glu Val Val Leu Asn Lys Leu His Met  
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Pro Leu Leu Thr Arg Phe Ile Arg Ile Arg Pro Gln Thr Trp His Leu  
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Gly Ile Ala Leu Arg Leu Glu Leu Phe Gly Cys Arg Val Thr Asp Ala  
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Pro Cys Ser Asn Met Leu Gly Met Leu Ser Gly Leu Ile Ala Asp Thr  
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Gln Ile Ser Ala Ser Ser Thr Arg Glu Tyr Leu Trp Ser Pro Ser Ala  
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Ala Arg Leu Val Ser Ser Arg Ser Gly Trp Phe Pro Arg Asn Pro Gln  
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Ala Gln Pro Gly Glu Glu Trp Leu Gln Val Asp Leu Gly Thr Pro Lys  
485 490 495

Thr Val Lys Gly Val Ile Ile Gln Gly Ala Arg Gly Asp Ser Ile  
500 505 510

Thr Ala Val Glu Ala Arg Ala Phe Val Arg Lys Phe Lys Val Ser Tyr  
515 520 525

Ser Leu Asn Gly Lys Asp Trp Glu Tyr Ile Gln Asp Pro Arg Thr Gln  
530 535 540

Gln Thr Lys Leu Phe Glu Gly Asn Met His Tyr Asp Thr Pro Asp Ile  
545 550 555 560

Arg Arg Phe Asp Pro Val Pro Ala Gln Tyr Val Arg Val Tyr Pro Glu  
565 570 575

Arg Trp Ser Pro Ala Gly Ile Gly Met Arg Leu Glu Val Leu Gly Cys  
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Asp Trp Thr Asp Ser Lys Pro Thr Val Glu Thr Leu Gly Pro Thr Val  
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Lys Ser Glu Glu Thr Thr Pro Tyr Pro Met Asp Glu Asp Ala Thr  
610 615 620

Glu Cys Gly Glu Asn Cys Ser Phe Glu Asp Asp Lys Asp Leu Gln Leu  
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Pro Ser Gly Phe Asn Cys Asn Phe Asp Phe Pro Glu Glu Thr Cys Gly  
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Trp Val Tyr Asp His Ala Lys Trp Leu Arg Ser Thr Trp Ile Ser Ser  
660 665 670

Ala Asn Pro Asn Asp Arg Thr Phe Pro Asp Asp Lys Asn Phe Leu Lys  
675 680 685

Leu Gln Ser Asp Gly Arg Arg Glu Gly Gln Tyr Gly Arg Leu Ile Ser  
690 695 700

Pro Pro Val His Leu Pro Arg Ser Pro Val Cys Met Glu Phe Gln Tyr  
705 710 715 720

Gln Ala Met Gly Gly His Gly Val Ala Leu Gln Val Val Arg Glu Ala  
725 730 735

Ser Gln Glu Ser Lys Leu Leu Trp Val Ile Arg Glu Asp Gln Gly Ser  
740 745 750

Glu Trp Lys His Gly Arg Ile Ile Leu Pro Ser Tyr Asp Met Glu Tyr  
755 760 765

Gln Ile Val Phe Glu Gly Val Ile Gly Lys Gly Arg Ser Gly Glu Ile  
770 775 780

Ser Gly Asp Asp Ile Arg Ile Ser Thr Asp Val Pro Leu Glu Asn Cys  
785 790 795 800

Met Glu Pro Ile Ser Ala Phe Ala Val Asp Ile Pro Glu Thr His Gly  
805 810 815

Gly Glu Gly Tyr Glu Asp Glu Ile Asp Asp Glu Tyr Glu Gly Asp Trp  
820 825 830

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Lys Glu Lys Ser Trp Leu Tyr Thr Leu Asp Pro Ile Leu Ile Thr Ile  
 850 855 860

Ile Ala Met Ser Ser Leu Gly Val Leu Leu Gly Ala Thr Cys Ala Gly  
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Leu Leu Leu Tyr Cys Thr Cys Ser Tyr Ser Gly Leu Ser Ser Arg Ser  
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 Val Pro Arg Leu Lys Leu Ser Tyr Lys Glu Met Leu Glu Ser Asn Asn  
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 Val Ile Thr Phe Asn Gly Leu Ala Asn Ser Ser Tyr His Thr Phe  
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 Ile Phe Ser Phe Asp Leu Val Asn Ile Lys Asp Phe Gln Lys Ile Val  
 80 85 90

tgg cca gta tct tac acc aga aga gat gaa tgc aag tgg gct gga aaa 339  
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 95 100 105

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cct aag ctg ctg aca gca tcc ctt tta ata gat gga gaa tta tac tct Pro Lys Leu Leu Thr Ala Ser Leu Leu Ile Asp Gly Glu Leu Tyr Ser 175 180 185	579
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gat gga gaa cac tct gga aaa gct act cac gct aga ata ggt cag ata Asp Gly Glu His Ser Gly Lys Ala Thr His Ala Arg Ile Gly Gln Ile 255 260 265	819
tgc aag aat gac ttt gga ggg cac aga agt ctg gtg aat aaa tgg aca Cys Lys Asn Asp Phe Gly Gly His Arg Ser Leu Val Asn Lys Trp Thr 270 275 280	867
aca ttc ctc aaa gct cgt ctg att tgc tca gtg cca ggt cca aat ggc Thr Phe Leu Lys Ala Arg Leu Ile Cys Ser Val Pro Gly Pro Asn Gly 285 290 295 300	915
att gac act cat ttt gat gaa ctg cag gat gta ttc cta atg aac ttt Ile Asp Thr His Phe Asp Glu Leu Gln Asp Val Phe Leu Met Asn Phe 305 310 315	963
aaa gat cct aaa aat cca gtt gta tat gga gtg ttt acg act tcc agt Lys Asp Pro Lys Asn Pro Val Val Tyr Gly Val Phe Thr Thr Ser Ser 320 325 330	1011
aac att ttc aag gga tca gcc gtg tgt atg tat agc atg agt gat gtg Asn Ile Phe Lys Gly Ser Ala Val Cys Met Tyr Ser Met Ser Asp Val 335 340 345	1059
aga agg gtg ttc ctt ggt cca tat gcc cac agg gat gga ccc aac tat Arg Arg Val Phe Leu Gly Pro Tyr Ala His Arg Asp Gly Pro Asn Tyr 350 355 360	1107

caa tgg gtg cct tat caa gga aga gtc ccc tat cca cg <sup>g</sup> cca gga act Gln Trp Val Pro Tyr Gln Gly Arg Val Pro Tyr Pro Arg Pro Gly Thr 365 370 375 380	1155
tgt ccc agc aaa aca aca ttt ggt ggt ttt gac tct aca aag gac ctt cct Cys Pro Ser Lys Thr Phe Gly Gly Phe Asp Ser Thr Lys Asp Leu Pro 385 390 395	1203
gat gat gtt ata acc ttt gca aga agt cat cca gcc atg tac aat cca Asp Asp Val Ile Thr Phe Ala Arg Ser His Pro Ala Met Tyr Asn Pro 400 405 410	1251
gtg ttt cct atg aac aat cgc cca ata gtg atc aaa acg gat gta aat Val Phe Pro Met Asn Asn Arg Pro Ile Val Ile Lys Thr Asp Val Asn 415 420 425	1299
tat caa ttt aca caa att gtc gta gac cga gtg gat gca gaa gat gga Tyr Gln Phe Thr Gln Ile Val Val Asp Arg Val Asp Ala Glu Asp Gly 430 435 440	1347
cag tat gat gtt atg ttt atc gga aca gat gtt ggg acc gtt ctt aaa Gln Tyr Asp Val Met Phe Ile Gly Thr Asp Val Gly Thr Val Leu Lys 445 450 455 460	1395
gta gtt tca att cct aag gag act tgg tat gat tta gaa gag gtt ctg Val Val Ser Ile Pro Lys Glu Thr Trp Tyr Asp Leu Glu Val Leu 465 470 475	1443
ctg gaa gaa atg aca gtt ttt cgg gaa ccg act gct att tca gca atg Leu Glu Glu Met Thr Val Phe Arg Glu Pro Thr Ala Ile Ser Ala Met 480 485 490	1491
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gtt gcc cag ctc cct tta cac cgg tgt gat att tac ggg aaa gcg tgt Val Ala Gln Leu Pro Leu His Arg Cys Asp Ile Tyr Gly Lys Ala Cys 510 515 520	1587
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gca tgt tct cgc tat ttt ccc act gca aag aga cgc aca aga cga caa Ala Cys Ser Arg Tyr Phe Pro Thr Ala Lys Arg Arg Thr Arg Arg Gln 545 550 555	1683
gat ata aga aat gga gac cca ctg act cac tgt tca gac tta cac cat Asp Ile Arg Asn Gly Asp Pro Leu Thr His Cys Ser Asp Leu His His 560 565 570	1731
gat aat cac cat ggc cac agc cct gaa gag aga atc atc tat ggt gta Asp Asn His His Gly His Ser Pro Glu Glu Arg Ile Ile Tyr Gly Val 575 580 585	1779
gag aat agt agc aca ttt ttg gaa tgc agt ccg aag tcg cag aga gcg Glu Asn Ser Ser Thr Phe Leu Glu Cys Ser Pro Lys Ser Gln Arg Ala 590 595 600	1827
ctg gtc tat tgg caa ttc cag agg cga aat gaa gag cga aaa gaa gag Leu Val Tyr Trp Gln Phe Gln Arg Arg Asn Glu Glu Arg Lys Glu Glu 605 610 615 620	1875

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cgt agt cta caa cag aag gat tca ggc aat tac ctc tgc cat gcg gtg Arg Ser Leu Gln Gln Lys Asp Ser Gly Asn Tyr Leu Cys His Ala Val 640 645 650	1971
gaa cat ggg ttc ata caa act ctt ctt aag gta acc ctg gaa gtc att Glu His Gly Phe Ile Gln Thr Leu Leu Lys Val Thr Leu Glu Val Ile 655 660 665	2019
gac aca gag cat ttg gaa gaa ctt ctt cat aaa gat gat gat gga gat Asp Thr Glu His Leu Glu Glu Leu Leu His Lys Asp Asp Asp Gly Asp 670 675 680	2067
ggc tct aag acc aaa gaa atg tcc aat agc atg aca cct agc cag aag Gly Ser Lys Thr Lys Glu Met Ser Asn Ser Met Thr Pro Ser Gln Lys 685 690 695 700	2115
gtc tgg tac aga gac ttc atg cag ctc atc aac cac ccc aat ctc aac Val Trp Tyr Arg Asp Phe Met Gln Leu Ile Asn His Pro Asn Leu Asn 705 710 715	2163
acg atg gat gag ttc tgt gaa caa gtt tgg aaa agg gac cga aaa caa Thr Met Asp Glu Phe Cys Glu Gln Val Trp Lys Arg Asp Arg Lys Gln 720 725 730	2211
cgt cgg caa agg cca gga cat acc cca ggg aac agt aac aaa tgg aag Arg Arg Gln Arg Pro Gly His Thr Pro Gly Asn Ser Asn Lys Trp Lys 735 740 745	2259
cac tta caa gaa aat aag aaa ggt aga aac agg agg acc cac gaa ttt His Leu Gln Glu Asn Lys Lys Gly Arg Asn Arg Arg Thr His Glu Phe 750 755 760	2307
gag agg gca ccc agg agt gtc tga gtcattac ctctagaaaac ctcaaacaag Glu Arg Ala Pro Arg Ser Val 765 770	2361
tagaaaacttg cctagacaat aactggaaaa acaaatgcaa tatacatgaa cttttttcat ggcattatgt ggatgtttac aatgggtggga aattcagctg agttccacca attataaatt aaatccatga gtaactttcc taataggctt tttttccta ataccacccg	2421 2481 2530

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Lys Leu Ser Tyr Lys Glu Met Leu Glu Ser Asn Asn Val Ile Thr Phe  
35 40 45

Asn Gly Leu Ala Asn Ser Ser Ser Tyr His Thr Phe Leu Leu Asp Glu  
50 55 60

Glu Arg Ser Arg Leu Tyr Val Gly Ala Lys Asp His Ile Phe Ser Phe  
65 70 75 80

Asp Leu Val Asn Ile Lys Asp Phe Gln Lys Ile Val Trp Pro Val Ser  
85 90 95

Tyr Thr Arg Arg Asp Glu Cys Lys Trp Ala Gly Lys Asp Ile Leu Lys  
100 105 110

Glu Cys Ala Asn Phe Ile Lys Val Leu Lys Ala Tyr Asn Gln Thr His  
115 120 125

Leu Tyr Ala Cys Gly Thr Gly Ala Phe His Pro Ile Cys Thr Tyr Ile  
130 135 140

Glu Ile Gly His His Pro Glu Asp Asn Ile Phe Lys Leu Glu Asn Ser  
145 150 155 160

His Phe Glu Asn Gly Arg Gly Lys Ser Pro Tyr Asp Pro Lys Leu Leu  
165 170 175

Thr Ala Ser Leu Leu Ile Asp Gly Glu Leu Tyr Ser Gly Thr Ala Ala  
180 185 190

Asp Phe Met Gly Arg Asp Phe Ala Ile Phe Arg Thr Leu Gly His His  
195 200 205

His Pro Ile Arg Thr Glu Gln His Asp Ser Arg Trp Leu Asn Asp Pro  
210 215 220

Lys Phe Ile Ser Ala His Leu Ile Ser Glu Ser Asp Asn Pro Glu Asp  
225 230 235 240

Asp Lys Val Tyr Phe Phe Arg Glu Asn Ala Ile Asp Gly Glu His  
245 250 255

Ser Gly Lys Ala Thr His Ala Arg Ile Gly Gln Ile Cys Lys Asn Asp  
260 265 270

Phe Gly Gly His Arg Ser Leu Val Asn Lys Trp Thr Thr Phe Leu Lys  
275 280 285

Ala Arg Leu Ile Cys Ser Val Pro Gly Pro Asn Gly Ile Asp Thr His  
290 295 300

Phe Asp Glu Leu Gln Asp Val Phe Leu Met Asn Phe Lys Asp Pro Lys  
305 310 315 320

Asn Pro Val Val Tyr Gly Val Phe Thr Thr Ser Ser Asn Ile Phe Lys  
325 330 335

Gly Ser Ala Val Cys Met Tyr Ser Met Ser Asp Val Arg Arg Val Phe  
340 345 350

Leu Gly Pro Tyr Ala His Arg Asp Gly Pro Asn Tyr Gln Trp Val Pro  
355 360 365

Tyr Gln Gly Arg Val Pro Tyr Pro Arg Pro Gly Thr Cys Pro Ser Lys  
370 375 380

Thr Phe Gly Gly Phe Asp Ser Thr Lys Asp Leu Pro Asp Asp Val Ile  
385 390 395 400

Thr Phe Ala Arg Ser His Pro Ala Met Tyr Asn Pro Val Phe Pro Met  
405 410 415

Asn Asn Arg Pro Ile Val Ile Lys Thr Asp Val Asn Tyr Gln Phe Thr  
420 425 430

Gln Ile Val Val Asp Arg Val Asp Ala Glu Asp Gly Gln Tyr Asp Val  
435 440 445

Met Phe Ile Gly Thr Asp Val Gly Thr Val Leu Lys Val Val Ser Ile  
450 455 460

Pro Lys Glu Thr Trp Tyr Asp Leu Glu Glu Val Leu Leu Glu Glu Met  
465 470 475 480

Thr Val Phe Arg Glu Pro Thr Ala Ile Ser Ala Met Glu Leu Ser Thr  
485 490 495

Lys Gln Gln Gln Leu Tyr Ile Gly Ser Thr Ala Gly Val Ala Gln Leu  
500 505 510

Pro Leu His Arg Cys Asp Ile Tyr Gly Lys Ala Cys Ala Glu Cys Cys  
515 520 525

Leu Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Ser Ala Cys Ser Arg  
530 535 540

Tyr Phe Pro Thr Ala Lys Arg Arg Thr Arg Arg Gln Asp Ile Arg Asn  
545 550 555 560

Gly Asp Pro Leu Thr His Cys Ser Asp Leu His His Asp Asn His His  
565 570 575

Gly His Ser Pro Glu Glu Arg Ile Ile Tyr Gly Val Glu Asn Ser Ser  
580 585 590

Thr Phe Leu Glu Cys Ser Pro Lys Ser Gln Arg Ala Leu Val Tyr Trp  
595 600 605

Gln Phe Gln Arg Arg Asn Glu Glu Arg Lys Glu Glu Ile Arg Val Asp  
610 615 620

Asp His Ile Ile Arg Thr Asp Gln Gly Leu Leu Leu Arg Ser Leu Gln  
625 630 635 640

Gln Lys Asp Ser Gly Asn Tyr Leu Cys His Ala Val Glu His Gly Phe  
645 650 655

Ile Gln Thr Leu Leu Lys Val Thr Leu Glu Val Ile Asp Thr Glu His  
660 665 670

Leu Glu Glu Leu Leu His Lys Asp Asp Asp Gly Asp Gly Ser Lys Thr  
675 680 685

Lys Glu Met Ser Asn Ser Met Thr Pro Ser Gln Lys Val Trp Tyr Arg  
690 695 700

Asp Phe Met Gln Leu Ile Asn His Pro Asn Leu Asn Thr Met Asp Glu  
705 710 715 720

Phe Cys Glu Gln Val Trp Lys Arg Asp Arg Lys Gln Arg Arg Gln Arg  
725 730 735

Pro Gly His Thr Pro Gly Asn Ser Asn Lys Trp Lys His Leu Gln Glu  
740 745 750

Asn Lys Lys Gly Arg Asn Arg Arg Thr His Glu Phe Glu Arg Ala Pro  
755 760 765

Arg Ser Val  
770

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 tcaaggctcc tccacacaca caccgcgtga accctgagca ccctgagctg ctgag atg 238  
 Met  
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 ggg cg gcc ggg gct gcc gtc atc ccg ggc ctg gcc ctg ctc tgg 286  
 Gly Arg Ala Gly Ala Ala Val Ile Pro Gly Leu Ala Leu Leu Trp  
 5 10 15  
  
 gca gtg ggg ctg ggg agt gcc gcc ccc agc ccc cca cgc ctt cgg ctc 334  
 Ala Val Gly Leu Gly Ser Ala Ala Pro Ser Pro Pro Arg Leu Arg Leu  
 20 25 30  
  
 tcc ttc caa gag ctc cag gcc tgg cat ggt ctc cag act ttc agc ctg 382  
 Ser Phe Gln Glu Leu Gln Ala Trp His Gly Leu Gln Thr Phe Ser Leu  
 35 40 45  
  
 gag cga acc tgc tgc tac cag gcc ttg ctg gtg gat gag gag cgt gga 430  
 Glu Arg Thr Cys Cys Tyr Gln Ala Leu Leu Val Asp Glu Glu Arg Gly  
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 cgc ctg ttt gtg ggt gcc gag aac cat gtg gcc tcc ctc aac ctg gac 478  
 Arg Leu Phe Val Gly Ala Glu Asn His Val Ala Ser Leu Asn Leu Asp  
 70 75 80  
  
 .aac atc agc aag cgg gcc aag aag ctg gcc tgg ccg gcc cct gtg gaa 526  
 Asn Ile Ser Lys Arg Ala Lys Lys Ile Ala Trp Pro Ala Pro Val Glu  
 85 90 95  
  
 tgg cga gag gag tgc aac tgg gca ggg aag gac att ggt act gag tgc 574  
 Trp Arg Glu Glu Cys Asn Trp Ala Gly Lys Asp Ile Gly Thr Glu Cys  
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 atg aac ttc gtg aag ttg ctg cat gcc tac aac cgc acc cat ttg ctg 622  
 Met Asn Phe Val Lys Leu Leu His Ala Tyr Asn Arg Thr His Leu Leu  
 115 120 125  
  
 gcc tgt ggc acg gga gcc ttc cac cca acc tgt gcc ttt gtg gaa gtg 670  
 Ala Cys Gly Thr Gly Ala Phe His Pro Thr Cys Ala Phe Val Glu Val  
 130 135 140 145  
  
 ggc cac cgg gca gag gag ccc gtc ctc cgg ctg gac cca gga agg ata 718  
 Gly His Arg Ala Glu Glu Pro Val Leu Arg Leu Asp Pro Gly Arg Ile  
 150 155 160  
  
 gag gat ggc aag ggg aag agt cct tat gac ccc agg cat cgg gct gcc 766  
 Glu Asp Gly Lys Gly Lys Ser Pro Tyr Asp Pro Arg His Arg Ala Ala  
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atg gga cga gac ttt acc atc ttt cgc agc cta ggg caa cgt cca agt Met Gly Arg Asp Phe Thr Ile Phe Arg Ser Leu Gly Gln Arg Pro Ser 195 200 205	862
ctc cga aca gag cca cac gac tcc cgc tgg ctc aat gag ccc aag ttt Leu Arg Thr Glu Pro His Asp Ser Arg Trp Leu Asn Glu Pro Lys Phe 210 215 220 225	910
gtc aag gta ttt tgg atc ccg gag agc gag aac cca gac gac gac aaa Val Lys Val Phe Trp Ile Pro Glu Ser Glu Asn Pro Asp Asp Asp Lys 230 235 240	958
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cgg ctg gtg tgc tcg gtg ccc ggc gtc gag ggc gac acc cac ttc gat Arg Leu Val Cys Ser Val Pro Gly Val Glu Gly Asp Thr His Phe Asp 290 295 300 305	1150
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ctg ctc tat gcc gtc ttc tcc acg tcc agc agc atc ttc cag ggc tct Leu Leu Tyr Ala Val Phe Ser Thr Ser Ser Ile Phe Gln Gly Ser 325 330 335	1246
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ccc ttt gca cac aag gag ggg ccc atg cac cag tgg gtg tca tac cag Pro Phe Ala His Lys Glu Gly Pro Met His Gln Trp Val Ser Tyr Gln 355 360 365	1342
ggc cgc gtc ccc tac ccg cgg cca ggc atg tgc ccc agc aag acc ttt Gly Arg Val Pro Tyr Pro Arg Pro Gly Met Cys Pro Ser Lys Thr Phe 370 375 380 385	1390
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gcg cgg aac cac ccc ctc atg tac aac tct gtc ctg ccc act ggg ggg Ala Arg Asn His Pro Leu Met Tyr Asn Ser Val Leu Pro Thr Gly Gly 405 410 415	1486
cgc cct ctt ttc cta caa gtt gga gcc aat tac acc ttc act caa att Arg Pro Leu Phe Leu Gln Val Gly Ala Asn Tyr Thr Phe Thr Gln Ile 420 425 430	1534

gcc gcg gac cgg gtt gca gcc gct gac gga cac tat gac gtc ctc ttc Ala Ala Asp Arg Val Ala Ala Ala Asp Gly His Tyr Asp Val Leu Phe 435 440 445	1582
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ccc agt gcc aag agg cgg ttc cgg cgg caa gac gta agg aat ggc gac Pro Ser Ala Lys Arg Arg Phe Arg Arg Gln Asp Val Arg Asn Gly Asp 550 555 560	1918
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cac aag gtg ttc ggc gtg gag ggc agc agc gcc ttt ctg gag tgt gag His Lys Val Phe Gly Val Glu Gly Ser Ser Ala Phe Leu Glu Cys Glu 580 585 590	2014
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gcc cgg gga cta ctg ctg cgc agg ctg cgg cgc cgg gac tcg ggc gtg Ala Arg Gly Leu Leu Arg Arg Leu Arg Arg Asp Ser Gly Val 630 635 640	2158
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Ser Leu Arg Met Cys Arg Pro Gln Pro Ala Leu Gln Ser Leu Pro Leu	
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Glu Ser Arg Arg Lys Gly Arg Asn Arg Arg Thr His Ala Pro Glu Pro	
725 730 735	
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Arg Ala Glu Arg Gly Pro Arg Ser Ala Thr His Trp	
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35 40 45

Leu Glu Arg Thr Cys Cys Tyr Gln Ala Leu Leu Val Asp Glu Glu Arg  
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Gly Arg Leu Phe Val Gly Ala Glu Asn His Val Ala Ser Leu Asn Leu  
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Asp Asn Ile Ser Lys Arg Ala Lys Lys Leu Ala Trp Pro Ala Pro Val  
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Glu Trp Arg Glu Glu Cys Asn Trp Ala Gly Lys Asp Ile Gly Thr Glu  
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Cys Met Asn Phe Val Lys Leu Leu His Ala Tyr Asn Arg Thr His Leu  
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Leu Ala Cys Gly Thr Gly Ala Phe His Pro Thr Cys Ala Phe Val Glu  
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Val Gly His Arg Ala Glu Glu Pro Val Leu Arg Leu Asp Pro Gly Arg  
145 150 155 160

Ile Glu Asp Gly Lys Gly Lys Ser Pro Tyr Asp Pro Arg His Arg Ala  
165 170 175

Ala Ser Val Leu Val Gly Glu Glu Leu Tyr Ser Gly Val Ala Ala Asp  
180 185 190

Leu Met Gly Arg Asp Phe Thr Ile Phe Arg Ser Leu Gly Gln Arg Pro  
195 200 205

Ser Leu Arg Thr Glu Pro His Asp Ser Arg Trp Leu Asn Glu Pro Lys  
210 215 220

Phe Val Lys Val Phe Trp Ile Pro Glu Ser Glu Asn Pro Asp Asp Asp  
225 230 235 240

Lys Ile Tyr Phe Phe Arg Glu Thr Ala Val Glu Ala Ala Pro Ala  
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Leu Gly Arg Leu Ser Val Ser Arg Val Gly Gln Ile Cys Arg Asn Asp  
260 265 270

Val Gly Gly Gln Arg Ser Leu Val Asn Lys Trp Thr Thr Phe Leu Lys  
275 280 285

Ala Arg Leu Val Cys Ser Val Pro Gly Val Glu Gly Asp Thr His Phe  
290 295 300

Asp Gln Leu Gln Asp Val Phe Leu Leu Ser Ser Arg Asp His Arg Thr  
305 310 315 320

Pro Leu Leu Tyr Ala Val Phe Ser Thr Ser Ser Ser Ile Phe Gln Gly  
325 330 335

Ser Ala Val Cys Val Tyr Ser Met Asn Asp Val Arg Arg Ala Phe Leu  
340 345 350

Gly Pro Phe Ala His Lys Glu Gly Pro Met His Gln Trp Val Ser Tyr  
355 360 365

Gln Gly Arg Val Pro Tyr Pro Arg Pro Gly Met Cys Pro Ser Lys Thr  
370 375 380

Phe Gly Thr Phe Ser Ser Thr Lys Asp Phe Pro Asp Asp Val Ile Gln  
385 390 395 400

Phe Ala Arg Asn His Pro Leu Met Tyr Asn Ser Val Leu Pro Thr Gly  
405 410 415

Gly Arg Pro Leu Phe Leu Gln Val Gly Ala Asn Tyr Thr Phe Thr Gln  
420 425 430

Ile Ala Ala Asp Arg Val Ala Ala Ala Asp Gly His Tyr Asp Val Leu  
435 440 445

Phe Ile Gly Thr Asp Val Gly Thr Val Leu Lys Val Ile Ser Val Pro  
450 455 460

Lys Gly Ser Arg Pro Ser Ala Glu Gly Leu Leu Leu Glu Glu Leu His  
465 470 475 480

Val Phe Glu Asp Ser Ala Ala Val Thr Ser Met Gln Ile Ser Ser Lys  
485 490 495

Arg His Gln Leu Tyr Val Ala Ser Arg Ser Ala Val Ala Gln Ile Ala  
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Leu His Arg Cys Ala Ala His Gly Arg Val Cys Thr Glu Cys Cys Leu  
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Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Val Ala Cys Thr Arg Phe  
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Gln Pro Ser Ala Lys Arg Arg Phe Arg Arg Gln Asp Val Arg Asn Gly  
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Asp Pro Ser Thr Leu Cys Ser Gly Asp Ser Ser Arg Pro Ala Leu Leu  
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Glu His Lys Val Phe Gly Val Glu Gly Ser Ser Ala Phe Leu Glu Cys  
580 585 590

Glu Pro Arg Ser Leu Gln Ala Arg Val Glu Trp Thr Phe Gln Arg Ala  
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Gly Val Thr Ala His Thr Gln Val Leu Ala Glu Glu Arg Thr Glu Arg  
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Thr Ala Arg Gly Leu Leu Leu Arg Arg Leu Arg Arg Asp Ser Gly  
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Val Tyr Leu Cys Ala Ala Val Glu Gln Gly Phe Thr Gln Pro Leu Arg  
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Arg Leu Ser Leu His Val Leu Ser Ala Thr Gln Ala Glu Arg Leu Ala  
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Arg Ala Glu Glu Ala Ala Pro Ala Ala Pro Pro Gly Pro Lys Leu Trp  
 675 680 685

Tyr Arg Asp Phe Leu Gln Leu Val Glu Pro Gly Gly Gly Ser Ala  
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Asn Ser Leu Arg Met Cys Arg Pro Gln Pro Ala Leu Gln Ser Leu Pro  
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45 50 55	
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205 210 215	
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&lt;211&gt; 751

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Phe Asp Glu Leu Arg Glu Thr Lys Thr Ser Glu Tyr Phe Ser Leu Ser		
35	40	45

His His Pro Leu Asp Tyr Arg Ile Leu Leu Met Asp Glu Asp Gln Asp		
50	55	60

Arg Ile Tyr Val Gly Ser Lys Asp His Ile Leu Ser Leu Asn Ile Asn			
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Asn Ile Ser Gln Glu Ala Leu Ser Val Phe Trp Pro Ala Ser Thr Ile		
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Lys Val Glu Glu Cys Lys Met Ala Gly Lys Asp Pro Thr His Gly Cys		
100	105	110

Gly Asn Phe Val Arg Val Ile Gln Thr Phe Asn Arg Thr His Leu Tyr		
115	120	125

Val Cys Gly Ser Gly Ala Phe Ser Pro Val Cys Thr Tyr Leu Asn Arg		
130	135	140

Gly Arg Arg Ser Glu Asp Gln Val Phe Met Ile Asp Ser Lys Cys Glu  
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Ser Gly Lys Gly Arg Cys Ser Phe Asn Pro Asn Val Asn Thr Val Ser  
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Val Met Ile Asn Glu Glu Leu Phe Ser Gly Met Tyr Ile Asp Phe Met  
180 185 190

Gly Thr Asp Ala Ala Ile Phe Arg Ser Leu Thr Lys Arg Asn Ala Val  
195 200 205

Arg Thr Asp Gln His Asn Ser Lys Trp Leu Ser Glu Pro Met Phe Val  
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Asp Ala His Val Ile Pro Asp Gly Thr Asp Pro Asn Asp Ala Lys Val  
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Tyr Phe Phe Phe Lys Glu Lys Leu Thr Asp Asn Asn Arg Ser Thr Lys  
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Gln Ile His Ser Met Ile Ala Arg Ile Cys Pro Asn Asp Thr Gly Gly  
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Val Cys Ser Val Thr Asp Glu Asp Gly Pro Glu Thr His Phe Asp Glu  
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Leu Glu Asp Val Phe Leu Leu Glu Thr Asp Asn Pro Arg Thr Thr Leu  
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Val Tyr Gly Ile Phe Thr Thr Ser Ser Val Phe Lys Gly Ser Ala  
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Val Cys Val Tyr His Leu Ser Asp Ile Gln Thr Val Phe Asn Gly Pro  
340 345 350

Phe Ala His Lys Glu Gly Pro Asn His Gln Leu Ile Ser Tyr Gln Gly  
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Arg Ile Pro Tyr Pro Arg Pro Gly Thr Cys Pro Gly Gly Ala Phe Thr  
370 375 380

Pro Asn Met Arg Thr Thr Lys Glu Phe Pro Asp Asp Val Val Thr Phe  
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Ile Arg Asn His Pro Leu Met Tyr Asn Ser Ile Tyr Pro Ile His Lys  
405 410 415

Arg Pro Leu Ile Val Arg Ile Gly Thr Asp Tyr Lys Tyr Thr Lys Ile  
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Ala Val Asp Arg Val Asn Ala Ala Asp Gly Arg Tyr His Val Leu Phe  
435 440 445

Leu Gly Thr Asp Arg Gly Thr Val Gln Lys Val Val Val Leu Pro Thr  
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Asn Asn Ser Val Ser Gly Glu Leu Ile Leu Glu Glu Leu Glu Val Phe  
465 470 475 480

Lys Asn His Ala Pro Ile Thr Thr Met Lys Ile Ser Ser Lys Lys Gln  
485 490 495

Gln Leu Tyr Val Ser Ser Asn Glu Gly Val Ser Gln Val Ser Leu His  
500 505 510

Arg Cys His Ile Tyr Gly Thr Ala Cys Ala Asp Cys Cys Leu Ala Arg  
515 520 525

Asp Pro Tyr Cys Ala Trp Asp Gly His Ser Cys Ser Arg Phe Tyr Pro  
530 535 540

Thr Gly Lys Arg Arg Ser Arg Arg Gln Asp Val Arg His Gly Asn Pro  
545 550 555 560

Leu Thr Gln Cys Arg Gly Phe Asn Leu Lys Ala Tyr Arg Asn Ala Ala  
565 570 575

Glu Ile Val Gln Tyr Gly Val Lys Asn Asn Thr Thr Phe Leu Glu Cys  
580 585 590

Ala Pro Lys Ser Pro Gln Ala Ser Ile Lys Trp Leu Leu Gln Lys Asp  
595 600 605

Lys Asp Arg Arg Lys Glu Val Lys Leu Asn Glu Arg Ile Ile Ala Thr  
610 615 620

Ser Gln Gly Leu Leu Ile Arg Ser Val Gln Gly Ser Asp Gln Gly Leu  
625 630 635 640

Tyr His Cys Ile Ala Thr Glu Asn Ser Phe Lys Gln Thr Ile Ala Lys  
645 650 655

Ile Asn Phe Lys Val Leu Asp Ser Glu Met Val Ala Val Val Thr Asp  
 660 665 670

Lys Trp Ser Pro Trp Thr Trp Ala Ser Ser Val Arg Ala Leu Pro Phe  
 675 680 685

His Pro Lys Asp Ile Met Gly Ala Phe Ser His Ser Glu Met Gln Met  
 690 695 700

Ile Asn Gln Tyr Cys Lys Asp Thr Arg Gln Gln His Gln Gln Gly Asp  
 705 710 715 720

Glu Ser Gln Lys Met Arg Gly Asp Tyr Gly Lys Leu Lys Ala Leu Ile  
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Asn Ser Arg Lys Ser Arg Asn Arg Arg Asn Gln Leu Pro Glu Ser  
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cctccttaaa gtgaggagcg agggcttggc cggtaaacac ggcagc atg gca tcc 475  
Met Ala Ser  
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gct ggg cac att atc acc ttg ctc ctg tgg ggt tac tta ctg gag ctt 523  
Ala Gly His Ile Ile Thr Leu Leu Leu Trp Gly Tyr Leu Leu Glu Leu  
5 10 15

tgg aca gga ggt cat aca gct gat act acc cac ccc cgg tta cgc ctg 571  
Trp Thr Gly Gly His Thr Ala Asp Thr His Pro Arg Leu Arg Leu  
20 25 30 35

tca cat aaa gag ctc ttg aat ctg aac aga aca tca ata ttt cat agc 619  
Ser His Lys Glu Leu Leu Asn Leu Asn Arg Thr Ser Ile Phe His Ser  
40 45 50

cct ttt gga ttt ctt gat ctc cat aca atg ctg ctg gat gaa tat caa 667  
 Pro Phe Gly Phe Leu Asp Leu His Thr Met Leu Leu Asp Glu Tyr Gln  
 55 60 65

gag agg ctc ttc gtg gga ggc agg gac ctt gta tat tcc ctc agc ttg 715  
 Glu Arg Leu Phe Val Gly Arg Asp Leu Val Tyr Ser Leu Ser Leu  
 70 75 80

gag aga atc agt gac ggc tat aaa gag ata cac tgg ccg agt aca gct 763  
 Glu Arg Ile Ser Asp Gly Tyr Lys Glu Ile His Trp Pro Ser Thr Ala  
 85 90 95

cta aaa atg gaa gaa tgc ata atg aag gga aaa gat gcg ggt gaa tgt 811  
 Leu Lys Met Glu Glu Cys Ile Met Lys Gly Lys Asp Ala Gly Glu Cys  
 100 105 110 115

gca aat tat gtt cgg gtt ttg cat cac tat aac agg aca cac ctt ctg 859  
 Ala Asn Tyr Val Arg Val Leu His His Tyr Asn Arg Thr His Leu Leu  
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acc tgt ggt act gga gct ttt gat cca gtt tgt gcc ttc atc aga gtt 907  
 Thr Cys Gly Thr Gly Ala Phe Asp Pro Val Cys Ala Phe Ile Arg Val  
 135 140 145

gga tat cat ttg gag gat cct ctg ttt cac ctg gaa tca ccc aga tct 955  
 Gly Tyr His Leu Glu Asp Pro Leu Phe His Leu Glu Ser Pro Arg Ser  
 150 155 160

gag aga gga agg ggc aga tgt cct ttt gac ccc agc tcc tcc ttc atc 1003  
 Glu Arg Gly Arg Gly Arg Cys Pro Phe Asp Pro Ser Ser Ser Phe Ile  
 165 170 175

tcc act tta att ggt agt gaa ttg ttt gct gga ctc tac agt gac tac 1051  
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 180 185 190 195

tgg agc aga gac gct ggc atc ttc cgc agc atg ggg cga ctg gcc cat 1099  
 Trp Ser Arg Asp Ala Ala Ile Phe Arg Ser Met Gly Arg Leu Ala His  
 200 205 210

atc cgc act gag cat gac gat gag cgt ctg ttg aaa gaa cca aaa ttt 1147  
 Ile Arg Thr Glu His Asp Asp Glu Arg Leu Leu Lys Glu Pro Lys Phe  
 215 220 225

gta ggt tca tac atg att cct gac aat gaa gac aga gat gac aac aaa 1195  
 Val Gly Ser Tyr Met Ile Pro Asp Asn Glu Asp Arg Asp Asn Lys  
 230 235 240

gta tat ttc ttt ttt act gag aag gca ctg gag gca gaa aac aat gct 1243  
 Val Tyr Phe Phe Thr Glu Lys Ala Leu Glu Ala Glu Asn Asn Ala  
 245 250 255

cac gca att tac acc agg gtc ggg cga ctc tgt gtg aat gat gta gga 1291  
 His Ala Ile Tyr Thr Arg Val Gly Arg Leu Cys Val Asn Asp Val Gly  
 260 265 270 275

ggg cag aga ata ctg gtg aat aag tgg agc act ttc cta aaa gcg aga 1339  
 Gly Gln Arg Ile Leu Val Asn Lys Trp Ser Thr Phe Leu Lys Ala Arg  
 280 285 290

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Leu Val Cys Ser Val Pro Gly Met Asn Gly Ile Asp Thr Tyr Phe Asp			
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Glu Leu Glu Asp Val Phe Leu Leu Pro Thr Arg Asp His Lys Asn Pro			
310	315	320	
gtg ata ttt gga ctc ttt aac act acc agt aat att ttt cga ggg cat			1483
Val Ile Phe Gly Leu Phe Asn Thr Thr Ser Asn Ile Phe Arg Gly His			
325	330	335	
gct ata tgt gtc tat cac atg tct agc att cgg gca gcc ttc aac gga			1531
Ala Ile Cys Val Tyr His Met Ser Ser Ile Arg Ala Ala Phe Asn Gly			
340	345	350	355
cca tat gca cat aag gaa gga cct gaa tac cac tgg tca gtc tat gaa			1579
Pro Tyr Ala His Lys Glu Gly Pro Glu Tyr His Trp Ser Val Tyr Glu			
360	365	370	
gga aaa gtc cct tat cca agg cct ggt tct tgt gcc agc aaa gta aat			1627
Gly Lys Val Pro Tyr Pro Arg Pro Gly Ser Cys Ala Ser Lys Val Asn			
375	380	385	
gga ggg aga tac gga acc acc aag gac tat cct gat gat gcc atc cga			1675
Gly Gly Arg Tyr Gly Thr Thr Lys Asp Tyr Pro Asp Asp Ala Ile Arg			
390	395	400	
ttt gca aga agt cat cca cta atg tac cag gcc ata aaa cct gcc cat			1723
Phe Ala Arg Ser His Pro Leu Met Tyr Gln Ala Ile Lys Pro Ala His			
405	410	415	
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Lys Lys Pro Ile Leu Val Lys Thr Asp Gly Lys Tyr Asn Leu Lys Gln			
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ata gca gta gat cga gtg gaa gct gag gat ggc caa tat gac gtc ttg			1819
Ile Ala Val Asp Arg Val Glu Ala Glu Asp Gly Gln Tyr Asp Val Leu			
440	445	450	
ttt att ggg aca gat aat gga att gtg ctg aaa gta atc aca att tac			1867
Phe Ile Gly Thr Asp Asn Gly Ile Val Leu Lys Val Ile Thr Ile Tyr			
455	460	465	
aac caa gaa atg gaa tca atg gaa gaa gta att cta gaa gaa ctt cag			1915
Asn Gln Glu Met Glu Ser Met Glu Glu Val Ile Leu Glu Glu Leu Gln			
470	475	480	
ata ttc aag gat cca gtt cct att att tct atg gag att tct tca aaa			1963
Ile Phe Lys Asp Pro Val Pro Ile Ile Ser Met Glu Ile Ser Ser Lys			
485	490	495	
cgg caa cag ctg tat att gga tct gct tct gct gtg gct caa gtc aga			2011
Arg Gln Gln Leu Tyr Ile Gly Ser Ala Ser Ala Val Ala Gln Val Arg			
500	505	510	515
ttc cat cac tgt gac atg tat gga agt gct tgt gct gac tgc tgc ctg			2059
Phe His His Cys Asp Met Tyr Gly Ser Ala Cys Ala Asp Cys Cys Leu			
520	525	530	
gct cga gac cct tac tgt gcc tgg gat ggc ata tcc tgc tcc cgg tat			2107
Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Ile Ser Cys Ser Arg Tyr			
535	540	545	

tac cca aca ggc aca cat gca aaa agg cgt ttc cgg aga caa gat gtt Tyr Pro Thr Gly Thr His Ala Lys Arg Arg Phe Arg Arg Gln Asp Val 550 555 560	2155
cga cat gga aat gca gct cag cag tgc ttt gga caa cag ttt gtt ggg Arg His Gly Asn Ala Ala Gln Gln Cys Phe Gly Gln Gln Phe Val Gly 565 570 575	2203
gat gct ttg gat aag act gaa gaa cat ctg gct tat ggc ata gag aac Asp Ala Leu Asp Lys Thr Glu Glu His Leu Ala Tyr Gly Ile Glu Asn 580 585 590 595	2251
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gaa aag aag ctc cgt tcc aaa cct gag cat tac cgc ctg ccc agg cac Glu Lys Lys Leu Arg Ser Lys Pro Glu His Tyr Arg Leu Pro Arg His 760 765 770	2779
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35 40 45

Phe His Ser Pro Phe Gly Phe Leu Asp Leu His Thr Met Leu Leu Asp  
50 55 60

Glu Tyr Gln Glu Arg Leu Phe Val Gly Gly Arg Asp Leu Val Tyr Ser  
65 70 75 80

Leu Ser Leu Glu Arg Ile Ser Asp Gly Tyr Lys Glu Ile His Trp Pro  
85 90 95

Ser Thr Ala Leu Lys Met Glu Glu Cys Ile Met Lys Gly Lys Asp Ala  
100 105 110

Gly Glu Cys Ala Asn Tyr Val Arg Val Leu His His Tyr Asn Arg Thr  
115 120 125

His Leu Leu Thr Cys Gly Thr Gly Ala Phe Asp Pro Val Cys Ala Phe  
130 135 140

Ile Arg Val Gly Tyr His Leu Glu Asp Pro Leu Phe His Leu Glu Ser  
145 150 155 160

Pro Arg Ser Glu Arg Gly Arg Cys Pro Phe Asp Pro Ser Ser  
165 170 175

Ser Phe Ile Ser Thr Leu Ile Gly Ser Glu Leu Phe Ala Gly Leu Tyr  
180 185 190

Ser Asp Tyr Trp Ser Arg Asp Ala Ala Ile Phe Arg Ser Met Gly Arg  
195 200 205

Leu Ala His Ile Arg Thr Glu His Asp Asp Glu Arg Leu Leu Lys Glu  
210 215 220

Pro Lys Phe Val Gly Ser Tyr Met Ile Pro Asp Asn Glu Asp Arg Asp  
225 230 235 240

Asp Asn Lys Val Tyr Phe Phe Thr Glu Lys Ala Leu Glu Ala Glu  
245 250 255

Asn Asn Ala His Ala Ile Tyr Thr Arg Val Gly Arg Leu Cys Val Asn  
260 265 270

Asp Val Gly Gly Gln Arg Ile Leu Val Asn Lys Trp Ser Thr Phe Leu  
275 280 285

Lys Ala Arg Leu Val Cys Ser Val Pro Gly Met Asn Gly Ile Asp Thr  
290 295 300

Tyr Phe Asp Glu Leu Glu Asp Val Phe Leu Leu Pro Thr Arg Asp His  
305 310 315 320

Lys Asn Pro Val Ile Phe Gly Leu Phe Asn Thr Thr Ser Asn Ile Phe  
325 330 335

Arg Gly His Ala Ile Cys Val Tyr His Met Ser Ser Ile Arg Ala Ala  
340 345 350

Phe Asn Gly Pro Tyr Ala His Lys Glu Gly Pro Glu Tyr His Trp Ser  
355 360 365

Val Tyr Glu Gly Lys Val Pro Tyr Pro Arg Pro Gly Ser Cys Ala Ser  
370 375 380

Lys Val Asn Gly Gly Arg Tyr Gly Thr Thr Lys Asp Tyr Pro Asp Asp  
385 390 395 400

Ala Ile Arg Phe Ala Arg Ser His Pro Leu Met Tyr Gln Ala Ile Lys  
405 410 415

Pro Ala His Lys Lys Pro Ile Leu Val Lys Thr Asp Gly Lys Tyr Asn  
420 425 430

Leu Lys Gln Ile Ala Val Asp Arg Val Glu Ala Glu Asp Gly Gln Tyr  
435 440 445

Asp Val Leu Phe Ile Gly Thr Asp Asn Gly Ile Val Leu Lys Val Ile  
450 455 460

Thr Ile Tyr Asn Gln Glu Met Glu Ser Met Glu Glu Val Ile Leu Glu  
465 470 475 480

Glu Leu Gln Ile Phe Lys Asp Pro Val Pro Ile Ile Ser Met Glu Ile  
485 490 495

Ser Ser Lys Arg Gln Gln Leu Tyr Ile Gly Ser Ala Ser Ala Val Ala  
500 505 510

Gln Val Arg Phe His His Cys Asp Met Tyr Gly Ser Ala Cys Ala Asp  
515 520 525

Cys Cys Leu Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Ile Ser Cys  
530 535 540

Ser Arg Tyr Tyr Pro Thr Gly Thr His Ala Lys Arg Arg Phe Arg Arg  
545 550 555 560

Gln Asp Val Arg His Gly Asn Ala Ala Gln Gln Cys Phe Gly Gln Gln  
565 570 575

Phe Val Gly Asp Ala Leu Asp Lys Thr Glu Glu His Leu Ala Tyr Gly  
580 585 590

Ile Glu Asn Asn Ser Thr Leu Leu Glu Cys Thr Pro Arg Ser Leu Gln  
595 600 605

Ala Lys Val Ile Trp Phe Val Gln Lys Gly Arg Glu Thr Arg Lys Glu  
610 615 620

Glu Val Lys Thr Asp Asp Arg Val Val Lys Met Asp Leu Gly Leu Leu  
625 630 635 640

Phe Leu Arg Leu His Lys Ser Asp Ala Gly Thr Tyr Phe Cys Gln Thr  
645 650 655

Val Glu His Ser Phe Val His Thr Val Arg Lys Ile Thr Leu Glu Val  
660 665 670

Val Glu Glu Glu Lys Val Glu Asp Met Phe Asn Lys Asp Asp Glu Glu  
675 680 685

Asp Arg His His Arg Met Pro Cys Pro Ala Gln Ser Ser Ile Ser Gln  
690 695 700

Gly Ala Lys Pro Trp Tyr Lys Glu Phe Leu Gln Leu Ile Gly Tyr Ser  
705 710 715 720

Asn Phe Gln Arg Val Glu Glu Tyr Cys Glu Lys Val Trp Cys Thr Asp  
725 730 735

Arg Lys Arg Lys Lys Leu Lys Met Ser Pro Ser Lys Trp Lys Tyr Ala  
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Met Leu Val Ala Gly Leu Leu Leu Trp Ala Ser  
1 5 10

ctt ctg acc ggg gcc tgg cca tcc ttc ccc acc acc cag gac cac ctc ccg 159.  
 Leu Leu Thr Gly Ala Trp Pro Ser Phe Pro Thr Gln Asp His Leu Pro  
 15 20 25

gcc acg ccc cggtc cggtc tca ttc aaa gag ctg aag gcc aca ggc  
 Ala Thr Pro Arg Val Arg Leu Ser Phe Lys Glu Leu Lys Ala Thr Gly  
           30             35                        40

acc gcc cac ttc ttc aac ttc ctg ctc aac aca acc gac tac cga atc  
 Thr Ala His Phe Phe Asn Phe Leu Leu Asn Thr Thr Asp Tyr Arg Ile  
 45 50 55

ttg ctc aag gac gag gac cac gac cgc atg tac gtg ggc agc aag gac 303  
 Leu Leu Lys Asp Glu Asp His Asp Arg Met Tyr Val Gly Ser Lys Asp  
 60 65 70 75

tac gtg ctg tcc ctg gac ctg cac gac atc aac cgc gag ccc ctc att 351  
 Tyr Val Leu Ser Leu Asp Leu His Asp Ile Asn Arg Glu Pro Leu Ile  
                   80                  85                  90

ata cac tgg gca gcc tcc cca cag cgc atc gag gaa tgc gtg ctc tca  
 Ile His Trp Ala Ala Ser Pro Gln Arg Ile Glu Glu Cys Val Leu Ser  
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ggc aag gat gtc aac ggc gag tgt ggg aac ttc gtc agg ctc atc cag 447  
 Gly Lys Asp Val Asn Gly Glu Cys Gly Asn Phe Val Arg Leu Ile Gln  
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ccc tgg aac cga aca cac ctg tat gtg tgc ggg aca ggt gcc tac aac  
 Pro Trp Asn Arg Thr His Leu Tyr Val Cys Gly Thr Gly Ala Tyr Asn  
 125 130 135

ccc atg tgc acc tat gtg aac cgc gga cgc cgc gcc cag gcc aca cca 543  
 Pro Met Cys Thr Tyr Val Asn Arg Gly Arg Arg Ala Gln Ala Thr Pro  
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tgg acc cag act cag gcg gtc aga ggc cgc ggc agc aga gcc acg gat 591  
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160 165 170

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gca gag gac cgc ttc ctg cgc aca gag cag ggc ttg ttg ctc cgt gca Ala Glu Asp Arg Phe Leu Arg Thr Glu Gln Gly Leu Leu Leu Arg Ala 655 660 665	2079
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gac gcc gtc cat gct gcc ctc ttc cca cca ctg tcc atg agc gcc ccg Asp Ala Val His Ala Ala Leu Phe Pro Pro Leu Ser Met Ser Ala Pro 700 705 710 715	2223
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&lt;400&gt; 18

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Arg Leu Ser Phe Lys Glu Leu Lys Ala Thr Gly Thr Ala His Phe Phe 35 40 45
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Asn Phe Leu Leu Asn Thr Thr Asp Tyr Arg Ile Leu Leu Lys Asp Glu 50 55 60
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Asp His Asp Arg Met Tyr Val Gly Ser Lys Asp Tyr Val Leu Ser Leu 65 70 75 80
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Asp Leu His Asp Ile Asn Arg Glu Pro Leu Ile Ile His Trp Ala Ala  
85 90 95

Ser Pro Gln Arg Ile Glu Glu Cys Val Leu Ser Gly Lys Asp Val Asn  
100 105 110

Gly Glu Cys Gly Asn Phe Val Arg Leu Ile Gln Pro Trp Asn Arg Thr  
115 120 125

His Leu Tyr Val Cys Gly Thr Gly Ala Tyr Asn Pro Met Cys Thr Tyr  
130 135 140

Val Asn Arg Gly Arg Arg Ala Gln Ala Thr Pro Trp Thr Gln Thr Gln  
145 150 155 160

Ala Val Arg Gly Arg Gly Ser Arg Ala Thr Asp Gly Ala Leu Arg Pro  
165 170 175

Met Pro Thr Ala Pro Arg Gln Asp Tyr Ile Phe Tyr Leu Glu Pro Glu  
180 185 190

Arg Leu Glu Ser Gly Lys Gly Lys Cys Pro Tyr Asp Pro Lys Leu Asp  
195 200 205

Thr Ala Ser Ala Leu Ile Asn Glu Glu Leu Tyr Ala Gly Val Tyr Ile  
210 215 220

Asp Phe Met Gly Thr Asp Ala Ala Ile Phe Arg Thr Leu Gly Lys Gln  
225 230 235 240

Thr Ala Met Arg Thr Asp Gln Tyr Asn Ser Arg Trp Leu Asn Asp Pro  
245 250 255

Ser Phe Ile His Ala Glu Leu Ile Pro Asp Ser Ala Glu Arg Asn Asp  
260 265 270

Asp Lys Leu Tyr Phe Phe Arg Glu Arg Ser Ala Glu Ala Pro Gln  
275 280 285

Ser Pro Ala Val Tyr Ala Arg Ile Gly Arg Ile Cys Leu Asn Asp Asp  
290 295 300

Gly Gly His Cys Cys Leu Val Asn Lys Trp Ser Thr Phe Leu Lys Ala  
305 310 315 320

Arg Leu Val Cys Ser Val Pro Gly Glu Asp Gly Ile Glu Thr His Phe  
325 330 335

Asp Glu Leu Gln Asp Val Phe Val Gln Gln Thr Gln Asp Val Arg Asn  
340 345 350

Pro Val Ile Tyr Ala Val Phe Thr Ser Ser Gly Ser Val Phe Arg Gly  
355 360 365

Ser Ala Val Cys Val Tyr Ser Met Ala Asp Ile Arg Met Val Phe Asn  
370 375 380

Gly Pro Phe Ala His Lys Glu Gly Pro Asn Tyr Gln Trp Met Pro Phe  
385 390 395 400

Ser Gly Lys Met Pro Tyr Pro Arg Pro Gly Thr Cys Pro Gly Gly Thr  
405 410 415

Phe Thr Pro Ser Met Lys Ser Thr Lys Asp Tyr Pro Asp Glu Val Ile  
420 425 430

Asn Phe Met Arg Ser His Pro Leu Met Tyr Gln Ala Val Tyr Pro Leu  
435 440 445

Gln Arg Arg Pro Leu Val Val Arg Thr Gly Ala Pro Tyr Arg Leu Thr  
450 455 460

Thr Ile Ala Val Asp Gln Val Asp Ala Gly Asp Gly Arg Tyr Glu Val  
465 470 475 480

Leu Phe Leu Gly Thr Asp Arg Gly Thr Val Gln Lys Val Ile Val Leu  
485 490 495

Pro Lys Asp Asp Gln Glu Met Glu Glu Leu Met Leu Glu Glu Val Glu  
500 505 510

Val Phe Lys Asp Pro Ala Pro Val Lys Thr Met Thr Ile Ser Ser Lys  
515 520 525

Arg Gln Gln Leu Tyr Val Ala Ser Ala Val Gly Val Thr His Leu Ser  
530 535 540

Leu His Arg Cys Gln Ala Tyr Gly Ala Ala Cys Ala Asp Cys Cys Leu  
545 550 555 560

Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Gln Ala Cys Ser Arg Tyr  
565 570 575

Thr Ala Ser Ser Lys Arg Arg Ser Arg Arg Gln Asp Val Arg His Gly  
580 585 590

Asn Pro Ile Arg Gln Cys Arg Gly Phe Asn Ser Asn Ala Asn Lys Asn  
595 600 605

Ala Val Glu Ser Val Gln Tyr Gly Val Ala Gly Ser Ala Ala Phe Leu  
610 615 620

Glu Cys Gln Pro Arg Ser Pro Gln Ala Thr Val Lys Trp Leu Phe Gln  
625 630 635 640

Arg Asp Pro Gly Asp Arg Arg Glu Ile Arg Ala Glu Asp Arg Phe  
645 650 655

Leu Arg Thr Glu Gln Gly Leu Leu Leu Arg Ala Leu Gln Leu Ser Asp.  
660 665 670

Arg Gly Leu Tyr Ser Cys Thr Ala Thr Glu Asn Asn Phe Lys His Val  
675 680 685

Val Thr Arg Val Gln Leu His Val Leu Gly Arg Asp Ala Val His Ala  
690 695 700

Ala Leu Phe Pro Pro Leu Ser Met Ser Ala Pro Pro Pro Pro Gly Ala.  
705 710 715 720

Gly Pro Pro Thr Pro Pro Tyr Gln Glu Leu Ala Gln Leu Leu Ala Gln  
725 730 735

Pro Glu Val Gly Leu Ile His Gln Tyr Cys Gln Gly Tyr Trp Arg His  
740 745 750

Val Pro Pro Ser Pro Arg Glu Ala Pro Gly Ala Pro Arg Ser Pro Glu  
755 760 765

Pro Gln Asp Gln Lys Lys Pro Arg Asn Arg Arg His His Pro Pro Asp  
770 775 780

Thr  
785

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<212> DNA  
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<220>  
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<222> (17) .. (592)

<220>  
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<222> (17)..(94)  
<223> Signal peptide

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gcc ttg ctg ctc tac cac cat gcc aag tgg tcc cag gct gca ccc		100	
Ala Leu Leu Leu Tyr Leu His His Ala Lys Trp Ser Gln Ala Ala Pro			
15                  20                  25			
atg gca gaa gga gga ggg cag aat cat cac gaa gtg gtg aag ttc atg		148	
Met Ala Glu Gly Gly Gln Asn His His Glu Val Val Lys Phe Met			
30                  35                  40			
gat gtc tat cag cgc agc tac tgc cat cca atc gag acc ctg gtg gac		196	
Asp Val Tyr Gln Arg Ser Tyr Cys His Pro Ile Glu Thr Leu Val Asp			
45                  50                  55                  60			
atc ttc cag gag tac cct gat gag atc gag tac atc ttc aag cca tcc		244	
Ile Phe Gln Glu Tyr Pro Asp Glu Ile Glu Tyr Ile Phe Lys Pro Ser			
65                  70                  75			
tgt gtg ccc ctg atg cga tgc ggg ggc tgc tgc aat gac gag ggc ctg		292	
Cys Val Pro Leu Met Arg Cys Gly Gly Cys Asn Asp Glu Gly Leu			
80                  85                  90			
gag tgt gtg ccc act gag gag tcc aac atc acc atg cag att atg cgg		340	
Glu Cys Val Pro Thr Glu Ser Asn Ile Thr Met Gln Ile Met Arg			
95                  100                  105			
atc aaa cct cac caa ggc cag cac ata gga gag atg agc ttc cta cag		388	
Ile Lys Pro His Gln Gly Gln His Ile Gly Glu Met Ser Phe Leu Gln			
110                  115                  120			
cac aac aaa tgt gaa tgc aga cca aag aaa gat aga gca aga caa gaa		436	
His Asn Lys Cys Glu Cys Arg Pro Lys Lys Asp Arg Ala Arg Gln Glu			
125                  130                  135                  140			
aat ccc tgt ggg cct tgc tca gag cgg aga aag cat ttg ttt gta caa		484	
Asn Pro Cys Gly Pro Cys Ser Glu Arg Arg Lys His Leu Phe Val Gln			
145                  150                  155			
gat ccg cag acg tgt aaa tgt tcc tgc aaa aac aca gac tcg cgt tgc		532	
Asp Pro Gln Thr Cys Lys Cys Ser Cys Lys Asn Thr Asp Ser Arg Cys			
160                  165                  170			
aag gcg agg cag ctt gag tta aac gaa cgt act tgc aga tgt gac aag		580	
Lys Ala Arg Gln Leu Glu Leu Asn Glu Arg Thr Cys Arg Cys Asp Lys			
175                  180                  185			
ccg agg cgg tga gccgggcagg aggaaggagc ctcccctcaggc gtttcgggaa		632	
Pro Arg Arg			
190			
ccagatctct caccagg		649	

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Met Asn Phe Leu Leu Ser Trp Val His Trp Ser Leu Ala Leu Leu  
1 5 10 15

Tyr Leu His His Ala Lys Trp Ser Gln Ala Ala Pro Met Ala Glu Gly  
20 25 30

Gly Gly Gln Asn His His Glu Val Val Lys Phe Met Asp Val Tyr Gln  
35 40 45

Arg Ser Tyr Cys His Pro Ile Glu Thr Leu Val Asp Ile Phe Gln Glu  
50 55 60

Tyr Pro Asp Glu Ile Glu Tyr Ile Phe Lys Pro Ser Cys Val Pro Leu  
65 70 75 80

Met Arg Cys Gly Cys Cys Asn Asp Glu Gly Leu Glu Cys Val Pro  
85 90 95

Thr Glu Glu Ser Asn Ile Thr Met Gln Ile Met Arg Ile Lys Pro His  
100 105 110

Gln Gly Gln His Ile Gly Glu Met Ser Phe Leu Gln His Asn Lys Cys  
115 120 125

Glu Cys Arg Pro Lys Lys Asp Arg Ala Arg Gln Glu Asn Pro Cys Gly  
130 135 140

Pro Cys Ser Glu Arg Arg Lys His Leu Phe Val Gln Asp Pro Gln Thr  
145 150 155 160

Cys Lys Cys Ser Cys Lys Asn Thr Asp Ser Arg Cys Lys Ala Arg Gln  
165 170 175

Leu Glu Leu Asn Glu Arg Thr Cys Arg Cys Asp Lys Pro Arg Arg  
180 185 190

<210> 21  
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<212> DNA  
<213> Homo sapiens

<220>  
 <221> CDS  
 <222> (5)..(628)

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aggagcctgg taaaaaaa

755

<210> 22  
<211> 207  
<212> PRT  
<213> Homo sapiens

&lt;400&gt; 22

Met Ser Pro Leu Leu Arg Arg Leu Leu Leu Ala Ala Leu Leu Gln Leu  
1 5 10 15

Ala Pro Ala Gln Ala Pro Val Ser Gln Pro Asp Ala Pro Gly His Gln  
20 25 30

Arg Lys Val Val Ser Trp Ile Asp Val Tyr Thr Arg Ala Thr Cys Gln  
35 40 45

Pro Arg Glu Val Val Pro Leu Thr Val Glu Leu Met Gly Thr Val  
50 55 60

Ala Lys Gln Leu Val Pro Ser Cys Val Thr Val Gln Arg Cys Gly Gly  
65 70 75 80

Cys Cys Pro Asp Asp Gly Leu Glu Cys Val Pro Thr Gly Gln His Gln  
85 90 95

Val Arg Met Gln Ile Leu Met Ile Arg Tyr Pro Ser Ser Gln Leu Gly  
100 105 110

Glu Met Ser Leu Glu Glu His Ser Gln Cys Glu Cys Arg Pro Lys Lys  
115 120 125

Lys Asp Ser Ala Val Lys Pro Asp Arg Ala Ala Thr Pro His His Arg  
130 135 140

Pro Gln Pro Arg Ser Val Pro Gly Trp Asp Ser Ala Pro Gly Ala Pro  
145 150 155 160

Ser Pro Ala Asp Ile Thr His Pro Thr Pro Ala Pro Gly Pro Ser Ala  
165 170 175

His Ala Ala Pro Ser Thr Thr Ser Ala Leu Thr Pro Gly Pro Ala Ala  
180 185 190

Ala Ala Ala Asp Ala Ala Ala Ser Ser Val Ala Lys Gly Gly Ala  
195 200 205

<210> 23  
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ttttacctga	cacccgcccgc	ctttccccgg	cactggctgg	gagggcgccc	tgcaaagtgg	180
ggaacgcgga	gcccccggacc	cgctcccgcc	gcctccggct	cgcccagggg	gggtcgccgg	240
gaggagcccg	ggggagaggg	accaggaggg	gcccgcggcc	tgcaggggc	gcccgcgccc	300
ccaccctgc	ccccggccagc	ggaccgggtcc	cccacccccc	gtcccttccac	c atg cac	357
					Met His	
					1	
ttg ctg ggc ttc ttc tct gtg gcg tgt tct ctg ctc gcc gct gcg ctg	Leu Leu Gly Phe Phe Ser Val Ala Cys Ser Leu Leu Ala Ala Ala Leu	405				
5	10	15				
ctc ccg ggt cct cgc gag gcg ccc gcc gcc gcc gcc ttc gag tcc	Leu Pro Gly Pro Arg Glu Ala Pro Ala Ala Ala Ala Phe Glu Ser	453				
20	25	30				
gga ctc gac ctc tcg gac gcg gag ccc gac gcg ggc gag gcc acg gct	Gly Leu Asp Ieu Ser Asp Ala Glu Pro Asp Ala Gly Glu Ala Thr Ala	501				
35	40	45			50	
tat gca agc aaa gat ctg gag gag cag tta cgg tct gtg tcc agt gta	Tyr Ala Ser Lys Asp Leu Glu Glu Gln Leu Arg Ser Val Ser Ser Val	549				
55	60	65				
gat gaa ctc atg act gta ctc tac cca gaa tat tgg aaa atg tac aag	Asp Glu Leu Met Thr Val Leu Tyr Pro Glu Tyr Trp Lys Met Tyr Lys	597				
70	75	80				
tgt cag cta agg aaa gga ggc tgg caa cat aac aga gaa cag gcc aac	Cys Gln Leu Arg Lys Gly Gly Trp Gln His Asn Arg Glu Gln Ala Asn	645				
85	90	95				
ctc aac tca agg aca gaa gag act ata aaa ttt gct gca gca cat tat	Leu Asn Ser Arg Thr Glu Glu Thr Ile Lys Phe Ala Ala Ala His Tyr	693				
100	105	110				
aat aca gag atc ttg aaa agt att gat aat gag tgg aga aag act caa	Asn Thr Glu Ile Leu Lys Ser Ile Asp Asn Glu Trp Arg Lys Thr Gln	741				
115	120	125			130	
tgc atg cca cgg gag gtg tgt ata gat gtg ggg aag gag ttt gga gtc	Cys Met Pro Arg Glu Val Cys Ile Asp Val Gly Lys Glu Phe Gly Val	789				
135	140	145				

gct aca aac acc ttc ttt aaa cct cca tgt gtg tcc gtc tac aga tgt Ala Thr Asn Thr Phe Phe Lys Pro Pro Cys Val Ser Val Tyr Arg Cys 150 155 160	837
ggg ggt tgc tgc aat agt gag ggg ctg cag tgc atg aac acc agc acg Gly Gly Cys Cys Asn Ser Glu Gly Leu Gln Cys Met Asn Thr Ser Thr 165 170 175	885
agc tac ctc agc aag acg tta ttt gaa att aca gtg cct ctc tct caa Ser Tyr Leu Ser Lys Thr Leu Phe Glu Ile Thr Val Pro Leu Ser Gln 180 185 190	933
ggc ccc aaa cca gta aca atc agt ttt gcc aat cac act tcc tgc cga Gly Pro Lys Pro Val Thr Ile Ser Phe Ala Asn His Thr Ser Cys Arg 195 200 205 210	981
tgc atg tct aaa ctg gat gtt tac aga caa gtt cat tcc att att aga Cys Met Ser Lys Leu Asp Val Tyr Arg Gln Val His Ser Ile Ile Arg 215 220 225	1029
cgt tcc ctg cca gca aca cta cca cag tgt cag gca gcg aac aag acc Arg Ser Leu Pro Ala Thr Leu Pro Gln Cys Gln Ala Ala Asn Lys Thr 230 235 240	1077
tgc ccc acc aat tac atg tgg aat aat cac atc tgc aga tgc ctg gct Cys Pro Thr Asn Tyr Met Trp Asn Asn His Ile Cys Arg Cys Leu Ala 245 250 255	1125
cag gaa gat ttt atg ttt tcc tcg gat gct gga gat gac tca aca gat Gln Glu Asp Phe Met Phe Ser Ser Asp Ala Gly Asp Asp Ser Thr Asp 260 265 270	1173
gga ttc cat gac atc tgt gga cca aac aag gag ctg gat gaa gag acc Gly Phe His Asp Ile Cys Gly Pro Asn Lys Glu Leu Asp Glu Glu Thr 275 280 285 290	1221
tgt cag tgt gtc aga gcg ggg ctt cgg cct gcc agc tgt gga ccc Cys Gln Cys Val Cys Arg Ala Gly Leu Arg Pro Ala Ser Cys Gly Pro 295 300 305	1269
cac aaa gaa cta gac aga aac tca tgc cag tgt gtc tgt aaa aac aaa His Lys Glu Leu Asp Arg Asn Ser Cys Gln Cys Val Cys Lys Asn Lys 310 315 320	1317
ctc ttc ccc agc caa tgt ggg gcc aac cga gaa ttt gat gaa aac aca Leu Phe Pro Ser Gln Cys Gly Ala Asn Arg Glu Phe Asp Glu Asn Thr 325 330 335	1365
tgc cag tgt gta tgt aaa aga acc tgc ccc aga aat caa ccc cta aat Cys Gln Cys Val Cys Lys Arg Thr Cys Pro Arg Asn Gln Pro Leu Asn 340 345 350	1413
cct gga aaa tgt gcc tgt gaa tgt aca gaa agt cca cag aaa tgc ttg Pro Gly Lys Cys Ala Cys Glu Cys Thr Glu Ser Pro Gln Lys Cys Leu 355 360 365 370	1461
tta aaa gga aag aag ttc cac cac caa aca tgc agc tgt tac aga cgg Leu Lys Gly Lys Lys Phe His His Gln Thr Cys Ser Cys Tyr Arg Arg 375 380 385	1509
cca tgt acg aac cgc cag aag gct tgt gag cca gga ttt tca tat agt Pro Cys Thr Asn Arg Gln Lys Ala Cys Glu Pro Gly Phe Ser Tyr Ser 390 395 400	1557

gaa gaa gtg tgt cgt tgt gtc cct tca tat tgg aaa aga cca caa atg Glu Glu Val Cys Arg Cys Val Pro Ser Tyr Trp Lys Arg Pro Gln Met 405 410 415	1605
agc taa gattgtactg tttccagtt catcgattt ctattatgga aaactgtgtt Ser	1661
gccacagtag aactgtctgt gaacagagag acccttgggt gtcctatgcta acaaagacaa aagtctgtct ttccctgaacc atgtggataa cttaacagaa atggactgga gtcatctgc	1721 1781
aaaaggccctc ttgtaaagac tggtttctg ccaatgacca aacagccaag atttccctct tgtgatttct ttaaaagaat gactatataa tttatcca ctaaaaatat tgtttctgca	1841 1901
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<212> PRT  
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<400> 24

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Glu Ser Gly Leu Asp Leu Ser Asp Ala Glu Pro Asp Ala Gly Glu Ala 35 40 45
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Thr Ala Tyr Ala Ser Lys Asp Leu Glu Glu Gln Leu Arg Ser Val Ser 50 55 60
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Ser Val Asp Glu Leu Met Thr Val Leu Tyr Pro Glu Tyr Trp Lys Met 65 70 75 80
--

Tyr Lys Cys Gln Leu Arg Lys Gly Trp Gln His Asn Arg Glu Gln 85 90 95
---

Ala Asn Leu Asn Ser Arg Thr Glu Glu Thr Ile Lys Phe Ala Ala Ala 100 105 110
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His Tyr Asn Thr Glu Ile Leu Lys Ser Ile Asp Asn Glu Trp Arg Lys 115 120 125
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Thr Gln Cys Met Pro Arg Glu Val Cys Ile Asp Val Gly Lys Glu Phe 130 135 140
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Gly Val Ala Thr Asn Thr Phe Phe Lys Pro Pro Cys Val Ser Val Tyr  
 145                    150                    155                    160

Arg Cys Gly Gly Cys Cys Asn Ser Glu Gly Leu Gln Cys Met Asn Thr  
 165                    170                    175

Ser Thr Ser Tyr Leu Ser Lys Thr Leu Phe Glu Ile Thr Val Pro Leu  
 180                    185                    190

Ser Gln Gly Pro Lys Pro Val Thr Ile Ser Phe Ala Asn His Thr Ser  
 195                    200                    205

Cys Arg Cys Met Ser Lys Leu Asp Val Tyr Arg Gln Val His Ser Ile  
 210                    215                    220

Ile Arg Arg Ser Leu Pro Ala Thr Leu Pro Gln Cys Gln Ala Ala Asn  
 225                    230                    235                    240

Lys Thr Cys Pro Thr Asn Tyr Met Trp Asn Asn His Ile Cys Arg Cys  
 245                    250                    255

Leu Ala Gln Glu Asp Phe Met Phe Ser Ser Asp Ala Gly Asp Asp Ser  
 260                    265                    270

Thr Asp Gly Phe His Asp Ile Cys Gly Pro Asn Lys Glu Leu Asp Glu  
 275                    280                    285

Glu Thr Cys Gln Cys Val Cys Arg Ala Gly Leu Arg Pro Ala Ser Cys  
 290                    295                    300

Gly Pro His Lys Glu Leu Asp Arg Asn Ser Cys Gln Cys Val Cys Lys  
 305                    310                    315                    320

Asn Lys Leu Phe Pro Ser Gln Cys Gly Ala Asn Arg Glu Phe Asp Glu  
 325                    330                    335

Asn Thr Cys Gln Cys Val Cys Lys Arg Thr Cys Pro Arg Asn Gln Pro  
 340                    345                    350

Leu Asn Pro Gly Lys Cys Ala Cys Glu Cys Thr Glu Ser Pro Gln Lys  
 355                    360                    365

Cys Leu Leu Lys Gly Lys Lys Phe His His Gln Thr Cys Ser Cys Tyr  
 370                    375                    380

Arg Arg Pro Cys Thr Asn Arg Gln Lys Ala Cys Glu Pro Gly Phe Ser  
 385                    390                    395                    400

Tyr Ser Glu Glu Val Cys Arg Cys Val Pro Ser Tyr Trp Lys Arg Pro  
 405                          410                          415

Gln Met Ser

<210> 25  
<211> 2029  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (411)..(1475)

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	ttagagtgt ttctaatttc aggtagaaga catgtccacc ttctgattat ttttggagaa	180	
	cattttgatt ttttcatct ctctctcccc acccctaaga ttgtgcaaaa aaagcgtacc	240	
	ttgcctaatt gaaataattt cattggattt tgatcagaac tgattattt gtttctgtg	300	
	tgaagttttg aggttcaaa ctttccttct ggagaatgcc ttttgaaca atttctcta	360	
	gctgcctgat gtcaactgct tagtaatcag tggatattga aatattcaaa atg tac	416	
	Met Tyr		
	1		
	aga gag tgg gta gtg gtg aat gtt ttc atg atg ttg tac gtc cag ctg	464	
	Arg Glu Trp Val Val Val Asn Val Phe Met Met Leu Tyr Val Gln Leu		
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Val Gln Gly Ser Ser Asn Glu His Gly Pro Val Lys Arg Ser Ser Gln			
20	25	30	
	tcc aca ttg gaa cga tct gaa cag cag atc agg gct gct tct agt ttg	560	
Ser Thr Leu Glu Arg Ser Glu Gln Gln Ile Arg Ala Ala Ser Ser Leu			
35	40	45	50
	gag gaa cta ctt cga att act cac tct gag gac tgg aag ctg tgg aga	608	
Glu Glu Leu Leu Arg Ile Thr His Ser Glu Asp Trp Lys Leu Trp Arg			
55	60	65	
	tgc agg ctg agg ctc aaa agt ttt acc agt atg gac tct cgc tca gca	656	
Cys Arg Leu Arg Leu Lys Ser Phe Thr Ser Met Asp Ser Arg Ser Ala			
70	75	80	
	tcc cat cgg tcc act agg ttt gcg gca act ttc tat gac att gaa aca	704	
Ser His Arg Ser Thr Arg Phe Ala Ala Thr Phe Tyr Asp Ile Glu Thr			
85	90	95	
	cta aaa gtt ata gat gaa gaa tgg caa aga act cag tgc agc cct aga	752	
Leu Lys Val Ile Asp Glu Glu Trp Gln Arg Thr Gln Cys Ser Pro Arg			
100	105	110	
	gaa acg tgc gtg gag gtg gcc agt gag ctg ggg aag agt acc aac aca	800	
Glu Thr Cys Val Glu Val Ala Ser Glu Leu Gly Lys Ser Thr Asn Thr			
115	120	125	130

ttc ttc aag ccc cct tgt gtg aac gtg ttc cga tgt ggt ggc tgt tgc Phe Phe Lys Pro Pro Cys Val Asn Val Phe Arg Cys Gly Gly Cys Cys 135 140 145	848
aat gaa gag agc ctt atc tgt atg aac acc agc acc tcg tac att tcc Asn Glu Glu Ser Leu Ile Cys Met Asn Thr Ser Thr Ser Tyr Ile Ser 150 155 160	896
aaa cag ctc ttt gag ata tca gtg cct ttg aca tca gta cct gaa tta Lys Gln Leu Phe Glu Ile Ser Val Pro Leu Thr Ser Val Pro Glu Leu 165 170 175	944
gtg cct gtt aaa gtt gcc aat cat aca ggt tgt aag tgc ttg cca aca Val Pro Val Lys Val Ala Asn His Thr Gly Cys Lys Cys Leu Pro Thr 180 185 190	992
gcc ccc cgc cat cca tac tca att atc aga aga tcc atc cag atc cct Ala Pro Arg His Pro Tyr Ser Ile Ile Arg Arg Ser Ile Gln Ile Pro 195 200 205 210	1040
gaa gaa gat cgc tgt tcc cat tcc aag aaa ctc tgt cct att gac atg Glu Glu Asp Arg Cys Ser His Ser Lys Lys Leu Cys Pro Ile Asp Met 215 220 225	1088
cta tgg gat agc aac aaa tgt aaa tgt gtt ttg cag gag gaa aat cca Leu Trp Asp Ser Asn Lys Cys Lys Val Leu Gln Glu Glu Asn Pro 230 235 240	1136
ctt gct gga aca gaa gac cac tct cat ctc cag gaa cca gct ctc tgt Leu Ala Gly Thr Glu Asp His Ser His Leu Gln Glu Pro Ala Leu Cys 245 250 255	1184
ggg cca cac atg atg ttt gac gaa gat cgt tgc gag tgt gtc tgt aaa Gly Pro His Met Met Phe Asp Glu Asp Arg Cys Glu Cys Val Cys Lys 260 265 270	1232
aca cca tgt ccc aaa gat cta atc cag cac ccc aaa aac tgc agt tgc Thr Pro Cys Pro Lys Asp Leu Ile Gln His Pro Lys Asn Cys Ser Cys 275 280 285 290	1280
ttt gag tgc aaa gaa agt ctg gag acc tgc tgc cag aag cac aag cta Phe Glu Cys Lys Glu Ser Leu Glu Thr Cys Cys Gln Lys His Lys Leu 295 300 305	1328
ttt cac cca gac acc tgc agc tgt gag gac aga tgc ccc ttt cat acc Phe His Pro Asp Thr Cys Ser Cys Glu Asp Arg Cys Pro Phe His Thr 310 315 320	1376
aga cca tgt gca agt ggc aaa aca gca tgt gca aag cat tgc cgc ttt Arg Pro Cys Ala Ser Gly Lys Thr Ala Cys Ala Lys His Cys Arg Phe 325 330 335	1424
cca aag gag aaa agg gct gcc cag ggg ccc cac agc cga aag aat cct Pro Lys Glu Lys Arg Ala Ala Gln Gly Pro His Ser Arg Lys Asn Pro 340 345 350	1472
tga ttcatcggttc caagttcccc atccctgtca ttttaacag catgctgctt	1525
tgccaaaggttt ctgtcactgt tttttcccc ggtgttaaaaa aaaaaatcca ttttacacag	1585
caccacagtg aatccagacc aaccttccat tcacaccagc taaggagtcc ctggttcatt	1645

gatggatgtc ttctagctgc agatgcctct ggcaccaag gaatggagag gaggggaccc	1705
atgtaatcct tttgtttagt tttgttttg tttttgggt aatgagaaaag gtgtgctggt	1765
catggaatgg caggtgtcat atgactgatt actcagagca gatgaggaaa actgtagtct	1825
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tgattcgtat gatcagtaact gactttctga ttactgtcca gcttatagtc ttccagttt	1945
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caagccaaaa aaaaaaaaaa aaaa	2029

<210> 26  
<211> 354  
<212> PRT  
<213> Homo sapiens

<400> 26

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Gln Leu Val Gln Gly Ser Ser Asn Glu His Gly Pro Val Lys Arg Ser		
20	25	30

Ser Gln Ser Thr Leu Glu Arg Ser Glu Gln Gln Ile Arg Ala Ala Ser		
35	40	45

Ser Leu Glu Glu Leu Leu Arg Ile Thr His Ser Glu Asp Trp Lys Leu		
50	55	60

Trp Arg Cys Arg Leu Arg Leu Lys Ser Phe Thr Ser Met Asp Ser Arg			
65	70	75	80

Ser Ala Ser His Arg Ser Thr Arg Phe Ala Ala Thr Phe Tyr Asp Ile		
85	90	95

Glu Thr Leu Lys Val Ile Asp Glu Glu Trp Gln Arg Thr Gln Cys Ser		
100	105	110

Pro Arg Glu Thr Cys Val Glu Val Ala Ser Glu Leu Gly Lys Ser Thr		
115	120	125

Asn Thr Phe Phe Lys Pro Pro Cys Val Asn Val Phe Arg Cys Gly Gly		
130	135	140

Cys Cys Asn Glu Glu Ser Leu Ile Cys Met Asn Thr Ser Thr Ser Tyr			
145	150	155	160

Ile Ser Lys Gln Leu Phe Glu Ile Ser Val Pro Leu Thr Ser Val Pro  
 165 170 175

Glu Leu Val Pro Val Lys Val Ala Asn His Thr Gly Cys Lys Cys Leu  
 180 185 190

Pro Thr Ala Pro Arg His Pro Tyr Ser Ile Ile Arg Arg Ser Ile Gln  
 195 200 205

Ile Pro Glu Glu Asp Arg Cys Ser His Ser Lys Lys Leu Cys Pro Ile  
 210 215 220

Asp Met Leu Trp Asp Ser Asn Lys Cys Lys Cys Val Leu Gln Glu Glu  
 225 230 235 240

Asn Pro Leu Ala Gly Thr Glu Asp His Ser His Leu Gln Glu Pro Ala  
 245 250 255

Leu Cys Gly Pro His Met Met Phe Asp Glu Asp Arg Cys Glu Cys Val  
 260 265 270

Cys Lys Thr Pro Cys Pro Lys Asp Leu Ile Gln His Pro Lys Asn Cys  
 275 280 285

Ser Cys Phe Glu Cys Lys Glu Ser Leu Glu Thr Cys Cys Gln Lys His  
 290 295 300

Lys Leu Phe His Pro Asp Thr Cys Ser Cys Glu Asp Arg Cys Pro Phe  
 305 310 315 320

His Thr Arg Pro Cys Ala Ser Gly Lys Thr Ala Cys Ala Lys His Cys  
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Arg Phe Pro Lys Glu Lys Arg Ala Ala Gln Gly Pro His Ser Arg Lys  
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Asn Pro

<210> 27  
 <211> 1645  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (322) .. (771)

<400> 27  
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cccagccaca gccttaccta cgggctcctg actccgcaag gcttccagaa gatgctcgaa	180
ccaccggccg gggcctcggg gcagcagtga gggaggcgta cagccccca ctcagcttt	240
ctcctcctgt gccaggggct ccccggggaa tgagcatggt ggtttccct cggagccccc	300
tggctcgaaa cgtctgagaa g atg ccg gtc atg agg ctg ttc cct tgc ttc Met Pro Val Met Arg Leu Phe Pro Cys Phe	351
1 5 10	
ctg cag ctc ctg gcc ggg ctg gcg ctg cct gct gtg ccc ccc cag cag Leu Gln Leu Leu Ala Gly Leu Ala Leu Pro Ala Val Pro Pro Gln Gln	399
15 20 25	
tgg gcc ttg tct gct ggg aac ggc tcg tca gag gtg gaa gtg gta ccc Trp Ala Leu Ser Ala Gly Asn Gly Ser Ser Glu Val Glu Val Val Pro	447
30 35 40	
ttc cag gaa gtg tgg ggc cgc agc tac tgc cgg gcg ctg gag agg ctg Phe Gln Glu Val Trp Gly Arg Ser Tyr Cys Arg Ala Leu Glu Arg Leu	495
45 50 55	
gtg gac gtc gtg tcc gag tac ccc agc gag gtg gag cac atg ttc agc Val Asp Val Val Ser Glu Tyr Pro Ser Glu Val Glu His Met Phe Ser	543
60 65 70	
cca tcc tgt gtc tcc ctg ctg cgc tgc acc ggc tgc tgc ggc gat gag Pro Ser Cys Val Ser Leu Leu Arg Cys Thr Gly Cys Cys Gly Asp Glu	591
75 80 85 90	
aat ctg cac tgt gtg ccg gtg gag acg gcc aat gtc acc atg cag ctc Asn Leu His Cys Val Pro Val Glu Thr Ala Asn Val Thr Met Gln Leu	639
95 100 105	
cta aag atc cgt tct ggg gac cgg ccc tcc tac gtg gag ctg acg ttc Leu Lys Ile Arg Ser Gly Asp Arg Pro Ser Tyr Val Glu Leu Thr Phe	687
110 115 120	
tct cag cac gtt cgc tgc gaa tgc cgg cct ctg cgg gag aag atg aag Ser Gln His Val Arg Cys Glu Cys Arg Pro Leu Arg Glu Lys Met Lys	735
125 130 135	
ccg gaa agg tgc ggc gat gct gtt ccc cgg agg taa cccacccctt Pro Glu Arg Cys Gly Asp Ala Val Pro Arg Arg	781
140 145	
ggaggagaga gaccccgcac ccggctcggt tatttattac cgtcacactc ttcaagtact	841
cctgctggta cctgcctct atttattagc caactgtttc cctgctgaat gcctcgctcc	901
cttcaagacg aggggcaggg aaggacagga ccctcaggaa ttcaagtgcct tcaacaacgt	961
gagagaaaga gagaagccag ccacagaccc ctgggagctt ccgtttgaa agaagcaaga	1021
cacgtggcct cgtgaggggc aagcttaggcc ccagaggccc tggaggtctc cagggcctg	1081
cagaaggaaa gaagggggcc ctgctacctg ttcttggcc tcaggctctg cacagacaag	1141
cagcccttgc tttcggagct cctgtccaaa gtagggatgc ggattctgct gggcccgcca	1201

cggcctggtg	gtgggaaggc	cggcagcggg	cgagggat	tcagccactt	ccccctttc	1261
ttctgaagat	cagaacattc	agctctggag	aacagtggtt	gcctggggc	tttgccact	1321
ccttgtcccc	cgtgatctcc	cctcacactt	tgccatttgc	ttgtactggg	acattgttct	1381
ttccggccga	ggtgccacca	ccctgcccc	actaagagac	acatacagag	tggcccccgg	1441
gctggagaaa	gagctgcctg	gatgagaaac	agctcagcca	gtggggatga	ggtcaccagg	1501
ggaggagcct	gtgcgtccca	gctgaaggca	gtggcagggg	agcaggttcc	ccaagggccc	1561
tggcacccccc	acaagctgtc	cctgcagggc	catctgactg	ccaagccaga	ttctcttgaa	1621
taaagtattc	tagtgtgaa	acgc				1645

&lt;210&gt; 28

&lt;211&gt; 149

&lt;212&gt; PRT

&lt;213&gt; Homo.sapiens

&lt;400&gt; 28

Met	Pro	Val	Met	Arg	Leu	Phe	Pro	Cys	Phe	Leu	Gln	Leu	Leu	Ala	Gly
1				5				10					15		

Leu	Ala	Leu	Pro	Ala	Val	Pro	Pro	Gln	Gln	Trp	Ala	Leu	Ser	Ala	Gly
			20			25						30.			

Asn	Gly	Ser	Ser	Glu	Val	Glu	Val	Val	Pro	Phe	Gln	Glu	Val	Trp	Gly
		35				40						45			

Arg	Ser	Tyr	Cys	Arg	Ala	Leu	Glu	Arg	Leu	Val	Asp	Val	Val	Ser	Glu
		50				55					60				

Tyr	Pro	Ser	Glu	Val	Glu	His	Met	Phe	Ser	Pro	Ser	Cys	Val	Ser	Leu
65				70				75				80			

Leu	Arg	Cys	Thr	Gly	Cys	Gly	Asp	Glu	Asn	Leu	His	Cys	Val	Pro
				85				90				95		

Val	Glu	Thr	Ala	Asn	Val	Thr	Met	Gln	Leu	Leu	Lys	Ile	Arg	Ser	Gly
					100		105				110				

Asp	Arg	Pro	Ser	Tyr	Val	Glu	Leu	Thr	Phe	Ser	Gln	His	Val	Arg	Cys
					115			120			125				

Glu	Cys	Arg	Pro	Leu	Arg	Glu	Lys	Met	Lys	Pro	Glu	Arg	Cys	Gly	Asp
					130		135			140					

Ala	Val	Pro	Arg	Arg
145				

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<210> 29  
<211> 4230  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)...(4065)

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gcc gcc tct gtg ggt ttg cct agt gtt tct ctt gat ctg ccc agg ctc	96
Ala Ala Ser Val Gly Leu Pro Ser Val Ser Leu Asp Leu Pro Arg Leu	
20 25 30	
agc ata caa aaa gac ata ctt aca att aag gct aat aca act ctt caa	144
Ser Ile Gln Lys Asp Ile Leu Thr Ile Lys Ala Asn Thr Thr Leu Gln	
35 40 45	
att act tgc agg gga cag agg gac ttg gac tgg ctt tgg ccc aat aat	192
Ile Thr Cys Arg Gly Gln Arg Asp Leu Asp Trp Leu Trp Pro Asn Asn	
50 55 60	
cag agt ggc agt gag caa agg gtg gag gtg act gag tgc agc gat ggc	240
Gln Ser Gly Ser Glu Gln Arg Val Glu Val Thr Glu Cys Ser Asp Gly	
65 70 75 80	
ctc ttc tgt aag aca ctc aca att cca aaa gtg atc gga aat gac act	288
Leu Phe Cys Lys Thr Leu Thr Ile Pro Lys Val Ile Gly Asn Asp Thr	
85 90 95	
gga gcc tac aag tgc ttc tac cgg gaa act gac ttg gcc tcg gtc att	336
Gly Ala Tyr Lys Cys Phe Tyr Arg Glu Thr Asp Leu Ala Ser Val Ile	
100 105 110	
tat gtc tat gtt caa gat tac aga tct cca ttt att gct tct gtt agt	384
Tyr Val Tyr Val Gln Asp Tyr Arg Ser Pro Phe Ile Ala Ser Val Ser	
115 120 125	
gac caa cat gga gtc gtg tac att act gag aac aaa aac aaa act gtg	432
Asp Gln His Gly Val Val Tyr Ile Thr Glu Asn Lys Asn Lys Thr Val	
130 135 140	
gtg att cca tgt ctc ggg tcc att tca aat ctc aac gtg tca ctt tgt	480
Val Ile Pro Cys Leu Gly Ser Ile Ser Asn Leu Asn Val Ser Leu Cys	
145 150 155 160	
gca aga tac cca gaa aag aga ttt gtt cct gat ggt aac aga att tcc	528
Ala Arg Tyr Pro Glu Lys Arg Phe Val Pro Asp Gly Asn Arg Ile Ser	
165 170 175	
tgg gac agc aag aag ggc ttt act att ccc agc tac atg atc agc tat	576
Trp Asp Ser Lys Lys Gly Phe Thr Ile Pro Ser Tyr Met Ile Ser Tyr	
180 185 190	
gct ggc atg gtc ttc tgt gaa gca aaa att aat gat gaa agt tac cag	624
Ala Gly Met Val Phe Cys Glu Ala Lys Ile Asn Asp Glu Ser Tyr Gln	
195 200 205	

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tct att atg tac ata gtt gtc gtt gta ggg tat agg att tat gat gtg Ser Ile Met Tyr Ile Val Val Val Val Gly Tyr Arg Ile Tyr Asp Val 210 215 220	672
gtt ctg agt ccg tct cat gga att gaa cta tct gtt gga gaa aag ctt Val Leu Ser Pro Ser His Gly Ile Glu Leu Ser Val Gly Glu Lys Leu 225 230 235 240	720
gtc tta aat tgt aca gca aga act gaa cta aat gtg ggg att gac ttc Val Leu Asn Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Ile Asp Phe 245 250 255	768
aac tgg gaa tac cct tct tcg aag cat cag cat aag aaa ctt gta aac Asn Trp Glu Tyr Pro Ser Lys His Gln His Lys Lys Leu Val Asn 260 265 270	816
cga gac cta aaa acc cag tct ggg agt gag atg aag aaa ttt ttg agc Arg Asp Leu Lys Thr Gln Ser Gly Ser Glu Met Lys Lys Phe Leu Ser 275 280 285	864
acc tta act ata gat ggt gta acc cgg agt gac caa gga ttg tac acc Thr Leu Thr Ile Asp Gly Val Thr Arg Ser Asp Gln Gly Leu Tyr Thr 290 295 300	912
tgt gca gca tcc agt ggg ctg atg acc aag aac agc aca ttt gtc Cys Ala Ala Ser Ser Gly Leu Met Thr Lys Lys Asn Ser Thr Phe Val 305 310 315 320	960
agg gtc cat gaa aaa cct ttt gct ttt gga agt ggc atg gaa tct Arg Val His Glu Lys Pro Phe Val Ala Phe Gly Ser Gly Met Glu Ser 325 330 335	1008
ctg gtg gaa gcc acg gtg ggg gag cgt gtc aga atc cct gcg aag tac Leu Val Glu Ala Thr Val Gly Glu Arg Val Arg Ile Pro Ala Lys Tyr 340 345 350	1056
ctt ggt tac cca ccc cca gaa ata aaa tgg tat aaa aat gga ata ccc Leu Gly Tyr Pro Pro Glu Ile Lys Trp Tyr Lys Asn Gly Ile Pro 355 360 365	1104
ctt gag tcc aat cac aca att aaa gcg ggg cat gta ctg acg att atg Leu Glu Ser Asn His Thr Ile Lys Ala Gly His Val Leu Thr Ile Met 370 375 380	1152
gaa gtg agt gaa aga gac aca gga aat tac act gtc atc ctt acc aat Glu Val Ser Glu Arg Asp Thr Gly Asn Tyr Thr Val Ile Leu Thr Asn 385 390 395 400	1200
ccc att tca aag gag aag cag acg cat gtg gtc tct ctg gtt gtg tat Pro Ile Ser Lys Glu Lys Gln Ser His Val Val Ser Leu Val Val Tyr 405 410 415	1248
gtc cca ccc cag att ggt gag aaa tct cta atc tct cct gtg gat tcc Val Pro Pro Gln Ile Gly Glu Lys Ser Leu Ile Ser Pro Val Asp Ser 420 425 430	1296
tac cag tac ggc acc actcaa acg ctg aca tgt acg gtc tat gcc att Tyr Gln Tyr Gly Thr Thr Gln Thr Leu Thr Cys Thr Val Tyr Ala Ile 435 440 445	1344
cct ccc ccg cat cac atc cac tgg tat tgg cag ttg gag gaa gag tgc Pro Pro Pro His His Ile His Trp Tyr Trp Gln Leu Glu Glu Cys 450 455 460	1392

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gcc aac gag ccc agc caa gct gtc tca gtg aca aac cca tac cct tgt Ala Asn Glu Pro Ser Gln Ala Val Ser Val Thr Asn Pro Tyr Pro Cys 465 470 475 480	1440
gaa gaa tgg aga agt gtg gag gac ttc cag gga gga aat aaa att gaa Glu Glu Trp Arg Ser Val Glu Asp Phe Gln Gly Gly Asn Lys Ile Glu 485 490 495	1488
gtt aat aaa aat caa ttt gct cta att gaa gga aaa aac aaa act gta Val Asn Lys Asn Gln Phe Ala Leu Ile Glu Gly Lys Asn Lys Thr Val 500 505 510	1536
agt acc ctt gtt atc caa gcg gca aat gtg tca gct ttg tac aaa tgt Ser Thr Leu Val Ile Gln Ala Ala Asn Val Ala Leu Tyr Lys Cys 515 520 525	1584
gaa gcg gtc aac aaa gtc ggg aga gga gag agg gtg atc tcc ttc cac Glu Ala Val Asn Lys Val Gly Arg Gly Glu Arg Ile Ser Phe His 530 535 540	1632
gtg acc agg ggt cct gaa att act ttg caa cct gac atg cag ccc act Val Thr Arg Gly Pro Glu Ile Thr Leu Gln Pro Asp Met Gln Pro Thr 545 550 555 560	1680
gag cag gag agc gtg tct ttg tgg tgc act gca gac aga tct acg ttt Glu Gln Glu Ser Val Ser Leu Trp Cys Thr Ala Asp Arg Ser Thr Phe 565 570 575	1728
gag aac ctc aca tgg tac aag ctt ggc cca cag cct ctg cca atc cat Glu Asn Leu Thr Trp Tyr Lys Leu Gly Pro Gln Pro Leu Pro Ile His 580 585 590	1776
gtg gga gag ttg ccc aca cct gtt tgc aag aac ttg gat act ctt tgg Val Gly Glu Leu Pro Thr Pro Val Cys Lys Asn Leu Asp Thr Leu Trp 595 600 605	1824
aaa ttg aat gcc acc atg ttc tct aat agc aca aat gac att ttg atc Lys Leu Asn Ala Thr Met Phe Ser Asn Ser Thr Asn Asp Ile Leu Ile 610 615 620	1872
atg gag ctt aag aat gca tcc ttg cag gac caa gga gac tat gtc tgc Met Glu Leu Lys Asn Ala Ser Leu Gln Asp Gln Gly Asp Tyr Val Cys 625 630 635 640	1920
ctt gct caa gac agg aag acc aag aaa aga cat tgc gtg gtc agg cag Leu Ala Gln Asp Arg Lys Thr Lys Arg His Cys Val Val Arg Gln 645 650 655	1968
ctc aca gtc cta gag cgt gtg gca ccc acg atc aca gga aac ctg gag Leu Thr Val Leu Glu Arg Val Ala Pro Thr Ile Thr Gly Asn Leu Glu 660 665 670	2016
aat cag acg aca agt att ggg gaa agc atc gaa gtc tca tgc acg gca Asn Gln Thr Thr Ser Ile Gly Glu Ser Ile Glu Val Ser Cys Thr Ala 675 680 685	2064
tct ggg aat ccc cct cca cag atc atg tgg ttt aaa gat aat gag acc Ser Gly Asn Pro Pro Gln Ile Met Trp Phe Lys Asp Asn Glu Thr 690 695 700	2112
ctt gta gaa gac tca ggc att gta ttg aag gat ggg aac cgg aac ctc Leu Val Glu Asp Ser Gly Ile Val Leu Lys Asp Gly Asn Arg Asn Leu 705 710 715 720	2160

act atc cgc aga gtg agg aag gag gac gaa ggc ctc tac acc tgc cag Thr Ile Arg Arg Val Arg Lys Glu Asp Glu Gly Leu Tyr Thr Cys Gln 725 730 735	2208
gca tgc agt gtt ctt ggc tgt gca aaa gtg gag gca ttt ttc ata ata Ala Cys Ser Val Leu Gly Cys Ala Lys Val Glu Ala Phe Phe Ile Ile 740 745 750	2256
gaa ggt gcc cag gaa aag acg aac ttg gaa atc att att cta gta ggc Glu Gly Ala Gln Glu Lys Thr Asn Leu Glu Ile Ile Ile Leu Val Gly 755 760 765	2304
acg acg gtg att gcc atg ttc ttc tgg cta ctt ctt gtc atc atc cta Thr Thr Val Ile Ala Met Phe Phe Trp Leu Leu Leu Val Ile Ile Leu 770 775 780	2352
ggg acc gtt aag cgg gcc aat gga ggg gaa ctg aag aca ggc tac ttg Gly Thr Val Lys Arg Ala Asn Gly Gly Glu Leu Lys Thr Gly Tyr Leu 785 790 795 800	2400
tcc atc gtc atg gat cca gat gaa ctc cca ttg gat gaa cat tgt gaa Ser Ile Val Met Asp Pro Asp Glu Leu Pro Leu Asp Glu His Cys Glu 805 810 815	2448
cga ctg cct tat gat gcc agc aaa tgg gaa ttc ccc aga gac cgg ctg Arg Leu Pro Tyr Asp Ala Ser Lys Trp Glu Phe Pro Arg Asp Arg Leu 820 825 830	2496
aac cta ggt aag cct ctt ggc cgt ggt gcc ttt ggc caa gag att gaa Asn Leu Gly Lys Pro Leu Gly Arg Gly Ala Phe Gly Gln Glu Ile Glu 835 840 845	2544
gca gat gcc ttt gga att gac aag aca gca act tgc agg aca gta gca Ala Asp Ala Phe Gly Ile Asp Lys Thr Ala Thr Cys Arg Thr Val Ala 850 855 860	2592
gtc aaa atg ttg aaa gaa gga gca aca cac agt gag cat cga gct ctc Val Lys Met Leu Lys Glu Gly Ala Thr His Ser Glu His Arg Ala Leu 865 870 875 880	2640
atg tct gaa ctc aag atc ctc att cat att ggt cac cat ctc aat gtg Met Ser Glu Leu Lys Ile Leu Ile His Ile Gly His His Leu Asn Val 885 890 895	2688
gtc aac ctt cta ggt gcc tgt acc aag cca gga ggg cca ctc atg gtg Val Asn Leu Leu Gly Ala Cys Thr Lys Pro Gly Gly Pro Leu Met Val 900 905 910	2736
att gtg gaa ttc tgc aaa ttt gga aac ctg tcc act tac ctg agg agc Ile Val Glu Phe Cys Lys Phe Gly Asn Leu Ser Thr Tyr Leu Arg Ser 915 920 925	2784
aag aga aat gaa ttt gtc ccc tac aag acc aaa ggg gca cga ttc cgt Lys Arg Asn Glu Phe Val Pro Tyr Lys Thr Lys Gly Ala Arg Phe Arg 930 935 940	2832
caa ggg aaa gac tac gtt gga gca atc cct gtg gat ctg aaa cgg cgc Gln Gly Lys Asp Tyr Val Gly Ala Ile Pro Val Asp Leu Lys Arg Arg 945 950 955 960	2880
ttg gac agc atc acc agt agc cag agc tca gcc agc tct gga ttt gtg Leu Asp Ser Ile Thr Ser Ser Gln Ser Ser Ala Ser Ser Gly Phe Val 965 970 975	2928

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ctg tat aag gac ttc ctg acc ttg gag cat ctc atc tgt tac agc ttc Leu Tyr Lys Asp Phe Leu Thr Leu Glu His Leu Ile Cys Tyr Ser Phe 995 1000 1005	3024
caa gtg gct aag ggc atg gag ttc ttg gca tcg cga aag tgt atc Gln Val Ala Lys Gly Met Glu Phe Leu Ala Ser Arg Lys Cys Ile 1010 1015 1020	3069
cac agg gac ctg gcg gca cga aat atc ctc tta tcg gag aag aac His Arg Asp Leu Ala Ala Arg Asn Ile Leu Leu Ser Glu Lys Asn 1025 1030 1035	3114
gtg gtt aaa atc tgt gac ttt ggc ttg gcc cggt gat att tat aaa Val Val Lys Ile Cys Asp Phe Gly Leu Ala Arg Asp Ile Tyr Lys 1040 1045 1050	3159
gat cca gat tat gtc aga aaa gga gat gct cgc ctc cct ttg aaa Asp Pro Asp Tyr Val Arg Lys Gly Asp Ala Arg Leu Pro Leu Lys 1055 1060 1065	3204
tgg atg gcc cca gaa aca att ttt gac aga gtg tac aca atc cag Trp Met Ala Pro Glu Thr Ile Phe Asp Arg Val Tyr Thr Ile Gln 1070 1075 1080	3249
agt gac gtc tgg tct ttt ggt gtt ttg ctg tgg gaa ata ttt tcc Ser Asp Val Trp Ser Phe Gly Val Leu Leu Trp Glu Ile Phe Ser 1085 1090 1095	3294
tta ggt gct tct cca tat cct ggg gta aag att gat gaa gaa ttt Leu Gly Ala Ser Pro Tyr Pro Gly Val Lys Ile Asp Glu Glu Phe 1100 1105 1110	3339
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act aca cca gaa atg tac cag acc atg ctg gac tgc tgg cac ggg Thr Thr Pro Glu Met Tyr Gln Thr Met Leu Asp Cys Trp His Gly 1130 1135 1140	3429
gag ccc agt cag aga ccc acg ttt tca gag ttg gtg gaa cat ttg Glu Pro Ser Gln Arg Pro Thr Phe Ser Glu Leu Val Glu His Leu 1145 1150 1155	3474
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att gtt ctt ccg ata tca gag act ttg agc atg gaa gag gat tct Ile Val Leu Pro Ile Ser Glu Thr Leu Ser Met Glu Glu Asp Ser 1175 1180 1185	3564
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Val Lys Thr Phe Glu Asp Ile	Pro Leu Glu Glu Pro	Glu Val Lys	
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Ser Glu Glu Leu Lys Thr Leu	Glu Asp Arg Thr Lys	Leu Ser Pro	
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Ser Phe Gly Gly Met Val Pro	Ser Lys Ser Arg Glu	Ser Val Ala	
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Ser Glu Gly Ser Asn Gln Thr	Ser Gly Tyr Gln Ser	Gly Tyr His	
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Ser Asp Asp Thr Asp Thr	Val Tyr Ser Ser Glu	Glu Ala Glu	
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Gly Ala Tyr Lys Cys Phe Tyr Arg Glu Thr Asp Leu Ala Ser Val Ile  
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Tyr Val Tyr Val Gln Asp Tyr Arg Ser Pro Phe Ile Ala Ser Val Ser  
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Asp Gln His Gly Val Val Tyr Ile Thr Glu Asn Lys Asn Lys Thr Val  
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Val Ile Pro Cys Leu Gly Ser Ile Ser Asn Leu Asn Val Ser Leu Cys  
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Ala Arg Tyr Pro Glu Lys Arg Phe Val Pro Asp Gly Asn Arg Ile Ser  
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Ser Ile Met Tyr Ile Val Val Val Val Gly Tyr Arg Ile Tyr Asp Val  
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Val Leu Ser Pro Ser His Gly Ile Glu Leu Ser Val Gly Glu Lys Leu  
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Val Leu Asn Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Ile Asp Phe  
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Asn Trp Glu Tyr Pro Ser Ser Lys His Gln His Lys Lys Leu Val Asn  
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Leu Glu Ser Asn His Thr Ile Lys Ala Gly His Val Leu Thr Ile Met  
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Pro Ile Ser Lys Glu Lys Gln Ser His Val Val Ser Leu Val Val Tyr  
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Val Pro Pro Gln Ile Gly Glu Lys Ser Leu Ile Ser Pro Val Asp Ser  
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Tyr Gln Tyr Gly Thr Thr Gln Thr Leu Thr Cys Thr Val Tyr Ala Ile  
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Pro Pro Pro His His Ile His Trp Tyr Trp Gln Leu Glu Glu Cys  
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Ala Asn Glu Pro Ser Gln Ala Val Ser Val Thr Asn Pro Tyr Pro Cys  
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Glu Glu Trp Arg Ser Val Glu Asp Phe Gln Gly Gly Asn Lys Ile Glu  
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Ser Thr Leu Val Ile Gln Ala Ala Asn Val Ser Ala Leu Tyr Lys Cys  
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Glu Asn Leu Thr Trp Tyr Lys Leu Gly Pro Gln Pro Leu Pro Ile His  
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Val Gly Glu Leu Pro Thr Pro Val Cys Lys Asn Leu Asp Thr Leu Trp  
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Lys Leu Asn Ala Thr Met Phe Ser Asn Ser Thr Asn Asp Ile Leu Ile  
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Met Glu Leu Lys Asn Ala Ser Leu Gln Asp Gln Gly Asp Tyr Val Cys  
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Leu Ala Gln Asp Arg Lys Thr Lys Lys Arg His Cys Val Val Arg Gln  
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Leu Thr Val Leu Glu Arg Val Ala Pro Thr Ile Thr Gly Asn Leu Glu  
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Asn Gln Thr Thr Ser Ile Gly Glu Ser Ile Glu Val Ser Cys Thr Ala  
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Ser Gly Asn Pro Pro Pro Gln Ile Met Trp Phe Lys Asp Asn Glu Thr  
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Val Lys Met Leu Lys Glu Gly Ala Thr His Ser Glu His Arg Ala Leu  
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Met Ser Glu Leu Lys Ile Leu Ile His Ile Gly His His Leu Asn Val  
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Lys Arg Asn Glu Phe Val Pro Tyr Lys Thr Lys Gly Ala Arg Phe Arg  
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Glu Glu Lys Ser Leu Ser Asp Val Glu Glu Glu Ala Pro Glu Asp  
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Leu Tyr Lys Asp Phe Leu Thr Leu Glu His Leu Ile Cys Tyr Ser Phe  
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gcc agg tat tac aac tgg gtg tcc ttt ccc ggg tgc ctg gcc aga ggg Ala Arg Tyr Tyr Asn Trp Val Ser Phe Pro Gly Cys Leu Ala Arg Gly 1230 1235 1240	3748
gct gag acc cgt ggt tcc tcc agg atg aag aca ttt gag gaa ttc ccc Ala Glu Thr Arg Gly Ser Ser Arg Met Lys Thr Phe Glu Glu Phe Pro 1245 1250 1255	3796
atg acc cca acg acc tac aaa ggc tct gtg gac aac cag aca gac agt Met Thr Pro Thr Tyr Lys Gly Ser Val Asp Asn Gln Thr Asp Ser 1260 1265 1270 1275	3844
ggg atg gtg ctg gcc tcg gag ttt gag cag ata gag agc agg cat Gly Met Val Leu Ala Ser Glu Glu Phe Glu Gln Ile Glu Ser Arg His 1280 1285 1290	3892
aga caa gaa agc ggc ttc agg tagctgaagc agagagagag aaggcagcat Arg Gln Glu Ser Gly Phe Arg 1295	3943
acgtcagcat tttcttctct gcacttataa gaaagatcaa agactttaag actttcgcta 4003 tttcttctac tgctatctac tacaaaacctc aaagaggaac caggaggaca agaggagcat 4063 gaaagtggac aaggagtgtg accactgaag caccacaggg aagggttag gcctccggat 4123 gactgcgggc aggctggat aatatccagc ctcccacaag aagctggtgg agcagagtgt 4183 tccctgactc ct 4195	

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<213> Homo sapiens

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Asn Ile Thr Glu Glu Ser His Val Ile Asp Thr Gly Asp Ser Leu Ser  
35 40 45

Ile Ser Cys Arg Gly Gln His Pro Leu Glu Trp Ala Trp Pro Gly Ala  
50 55 60

Gln Glu Ala Pro Ala Thr Gly Asp Lys Asp Ser Glu Asp Thr Gly Val  
65 70 75 80

Val Arg Asp Cys Glu Gly Thr Asp Ala Arg Pro Tyr Cys Lys Val Leu  
85 90 95

Leu Leu His Glu Val His Ala Asn Asp Thr Gly Ser Tyr Val Cys Tyr  
100 105 110

Tyr Lys Tyr Ile Lys Ala Arg Ile Glu Gly Thr Thr Ala Ala Ser Ser  
115 120 125

Tyr Val Phe Val Arg Asp Phe Glu Gln Pro Phe Ile Asn Lys Pro Asp  
130 135 140

Thr Leu Leu Val Asn Arg Lys Asp Ala Met Trp Val Pro Cys Leu Val  
145 150 155 160

Ser Ile Pro Gly Leu Asn Val Thr Leu Arg Ser Gln Ser Ser Val Leu  
165 170 175

Trp Pro Asp Gly Gln Glu Val Val Trp Asp Asp Arg Arg Gly Met Leu  
180 185 190

Val Ser Thr Pro Leu Leu His Asp Ala Leu Tyr Leu Gln Cys Glu Thr  
195 200 205

Thr Trp Gly Asp Gln Asp Phe Leu Ser Asn Pro Phe Leu Val His Ile  
210 215 220

Thr Gly Asn Glu Leu Tyr Asp Ile Gln Leu Leu Pro Arg Lys Ser Leu  
225 230 235 240

Glu Leu Leu Val Gly Glu Lys Leu Val Leu Asn Cys Thr Val Trp Ala  
245 250 255

Glu Phe Asn Ser Gly Val Thr Phe Asp Trp Asp Tyr Pro Gly Lys Gln  
260 265 270

Ala Glu Arg Gly Lys Trp Val Pro Glu Arg Arg Ser Gln Gln Thr His  
275 280 285

Thr Glu Leu Ser Ser Ile Leu Thr Ile His Asn Val Ser Gln His Asp  
290 295 300

Leu Gly Ser Tyr Val Cys Lys Ala Asn Asn Gly Ile Gln Arg Phe Arg  
305 310 315 320

Glu Ser Thr Glu Val Ile Val His Glu Asn Pro Phe Ile Ser Val Glu  
325 330 335

Trp Leu Lys Gly Pro Ile Leu Glu Ala Thr Ala Gly Asp Glu Leu Val  
340 345 350

Lys Leu Pro Val Lys Leu Ala Ala Tyr Pro Pro Pro Glu Phe Gln Trp  
355 360 365

Tyr Lys Asp Gly Lys Ala Leu Ser Gly Arg His Ser Pro His Ala Leu  
370 375 380

Val Leu Lys Glu Val Thr Glu Ala Ser Thr Gly Thr Tyr Thr Leu Ala  
385 390 395 400

Leu Trp Asn Ser Ala Ala Gly Leu Arg Arg Asn Ile Ser Leu Glu Leu  
405 410 415

Val Val Asn Val Pro Pro Gln Ile His Glu Lys Glu Ala Ser Ser Pro  
420 425 430

Ser Ile Tyr Ser Arg His Ser Arg Gln Ala Leu Thr Cys Thr Ala Tyr  
435 440 445

Gly Val Pro Leu Pro Leu Ser Ile Gln Trp His Trp Arg Pro Trp Thr  
450 455 460

Pro Cys Lys Met Phe Ala Gln Arg Ser Leu Arg Arg Arg Gln Gln Gln  
465 470 475 480

Asp Leu Met Pro Gln Cys Arg Asp Trp Arg Ala Val Thr Thr Gln Asp  
485 490 495

Ala Val Asn Pro Ile Glu Ser Leu Asp Thr Trp Thr Glu Phe Val Glu  
500 505 510

Gly Lys Asn Lys Thr Val Ser Lys Leu Val Ile Gln Asn Ala Asn Val  
515 520 525

Ser Ala Met Tyr Lys Cys Val Val Ser Asn Lys Val Gly Gln Asp Glu  
530 535 540

Arg Leu Ile Tyr Phe Tyr Val Thr Thr Ile Pro Asp Gly Phe Thr Ile  
545 550 555 560

Glu Ser Lys Pro Ser Glu Glu Leu Leu Glu Gly Gln Pro Val Leu Leu  
565 570 575

Ser Cys Gln Ala Asp Ser Tyr Lys Tyr Glu His Leu Arg Trp Tyr Arg  
580 585 590

Leu Asn Leu Ser Thr Leu His Asp Ala His Gly Asn Pro Leu Leu Leu  
595 600 605

Asp Cys Lys Asn Val His Leu Phe Ala Thr Pro Leu Ala Ala Ser Leu  
610 615 620

Glu Glu Val Ala Pro Gly Ala Arg His Ala Thr Leu Ser Leu Ser Ile  
625 630 635 640

Pro Arg Val Ala Pro Glu His Glu Gly His Tyr Val Cys Glu Val Gln  
645 650 655

Asp Arg Arg Ser His Asp Lys His Cys His Lys Lys Tyr Leu Ser Val  
660 665 670

Gln Ala Leu Glu Ala Pro Arg Leu Thr Gln Asn Leu Thr Asp Leu Leu  
675 680 685

Val Asn Val Ser Asp Ser Leu Glu Met Gln Cys Leu Val Ala Gly Ala  
690 695 700

His Ala Pro Ser Ile Val Trp Tyr Lys Asp Glu Arg Leu Leu Glu Glu  
705 710 715 720

Lys Ser Gly Val Asp Leu Ala Asp Ser Asn Gln Lys Leu Ser Ile Gln  
725 730 735

Arg Val Arg Glu Glu Asp Ala Gly Arg Tyr Leu Cys Ser Val Cys Asn  
740 745 750

Ala Lys Gly Cys Val Asn Ser Ser Ala Ser Val Ala Val Glu Gly Ser  
755 760 765

Glu Asp Lys Gly Ser Met Glu Ile Val Ile Leu Val Gly Thr Gly Val  
770 775 780

Ile Ala Val Phe Phe Trp Val Leu Leu Leu Ile Phe Cys Asn Met  
785 790 795 800

Arg Arg Pro Ala His Ala Asp Ile Lys Thr Gly Tyr Leu Ser Ile Ile  
805 810 815

Met Asp Pro Gly Glu Val Pro Leu Glu Glu Gln Cys Glu Tyr Leu Ser  
820 825 830

Tyr Asp Ala Ser Gln Trp Glu Phe Pro Arg Glu Arg Leu His Leu Gly  
835 840 845

Arg Val Leu Gly Tyr Gly Ala Phe Gly Lys Val Val Glu Ala Ser Ala  
850 855 860

Phe Gly Ile His Lys Gly Ser Ser Cys Asp Thr Val Ala Val Lys Met  
865 870 875 880

Leu Lys Glu Gly Ala Thr Ala Ser Glu His Arg Ala Leu Met Ser Glu  
885 890 895

Leu Lys Ile Leu Ile His Ile Gly Asn His Leu Asn Val Val Asn Leu  
900 905 910

Leu Gly Ala Cys Thr Lys Pro Gln Gly Pro Leu Met Val Ile Val Glu  
915 920 925

Phe Cys Lys Tyr Gly Asn Leu Ser Asn Phe Leu Arg Ala Lys Arg Asp  
930 935 940

Ala Phe Ser Pro Cys Ala Glu Lys Ser Pro Glu Gln Arg Gly Arg Phe  
945 950 955 960

Arg Ala Met Val Glu Leu Ala Arg Leu Asp Arg Arg Arg Pro Gly Ser  
965 970 975

Ser Asp Arg Val Leu Phe Ala Arg Phe Ser Lys Thr Glu Gly Gly Ala  
980 985 990

Arg Arg Ala Ser Pro Asp Gln Glu Ala Glu Asp Leu Trp Leu Ser Pro  
995 1000 1005

Leu Thr Met Glu Asp Leu Val Cys Tyr Ser Phe Gln Val Ala Arg Gly  
1010 1015 1020

Met Glu Phe Leu Ala Ser Arg Lys Cys Ile His Arg Asp Leu Ala Ala  
1025 1030 1035 1040

Arg Asn Ile Leu Leu Ser Glu Ser Asp Val Val Lys Ile Cys Asp Phe

1045

1050

1055

Gly Leu Ala Arg Asp Ile Tyr Lys Asp Pro Asp Tyr Val Arg Lys Gly  
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Ser Ala Arg Leu Pro Leu Lys Trp Met Ala Pro Glu Ser Ile Phe Asp  
1075 1080 1085

Lys Val Tyr Thr Thr Gln Ser Asp Val Trp Ser Phe Gly Val Leu Leu  
1090 1095 1100

Trp Glu Ile Phe Ser Leu Gly Ala Ser Pro Tyr Pro Gly Val Gln Ile  
1105 1110 1115 1120

Asn Glu Glu Phe Cys Gln Arg Leu Arg Asp Gly Thr Arg Met Arg Ala  
1125 1130 1135

Pro Glu Leu Ala Thr Pro Ala Ile Arg Arg Ile Met Leu Asn Cys Trp  
1140 1145 1150

Ser Gly Asp Pro Lys Ala Arg Pro Ala Phe Ser Glu Leu Val Glu Ile  
1155 1160 1165

Leu Gly Asp Leu Leu Gln Gly Arg Gly Leu Gln Glu Glu Glu Glu Val  
1170 1175 1180

Cys Met Ala Pro Arg Ser Ser Gln Ser Ser Glu Glu Gly Ser Phe Ser  
1185 1190 1195 1200

Gln Val Ser Thr Met Ala Leu His Ile Ala Gln Ala Asp Ala Glu Asp  
1205 1210 1215

Ser Pro Pro Ser Leu Gln Arg His Ser Leu Ala Ala Arg Tyr Tyr Asn  
1220 1225 1230

Trp Val Ser Phe Pro Gly Cys Leu Ala Arg Gly Ala Glu Thr Arg Gly  
1235 1240 1245

Ser Ser Arg Met Lys Thr Phe Glu Glu Phe Pro Met Thr Pro Thr Thr  
1250 1255 1260

Tyr Lys Gly Ser Val Asp Asn Gln Thr Asp Ser Gly Met Val Leu Ala  
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Ser Glu Glu Phe Glu Gln Ile Glu Ser Arg His Arg Gln Glu Ser Gly  
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Phe Arg

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tcatgttttt ttatccccgt tatcccagct ccaatatgct gaagacctac ttctccgacg	2100
taaagttcaa cagatgcatt acctctcagc tcatcaagtg gtttagcaat ttccgtgagt	2160

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ctctacagac agtgatgtgt ctcttgcatt tactgctaag aaggctgaa aatttaatga	2940
aaccacttca tacatttaag tattttgtt ggttgaact caatcagtag ctttcctta	3000
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ggccaaatta aaaaaaaaaa aaaaaaaaaa	3088

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<212> PRT  
<213> Homo sapiens

<400> 38

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Phe Phe Ala Lys Ala Arg Ala Thr Phe Phe Ser Ala Met Asn Pro Gln  
35 40 45

Gly Ser Glu Gln Asp Val Glu Tyr Ser Val Val Gln His Ala Asp Gly  
50 55 60

Glu Lys Ser Asn Val Leu Arg Lys Leu Leu Lys Arg Ala Asn Ser Tyr  
65 70 75 80

Glu Asp Ala Met Met Pro Phe Pro Gly Ala Thr Ile Ile Ser Gln Leu  
85 90 95

Leu Lys Asn Asn Met Asn Lys Asn Gly Gly Thr Glu Pro Ser Phe Gln  
100 105 110

Ala Ser Gly Leu Ser Ser Thr Gly Ser Glu Val His Gln Glu Asp Ile  
115 120 125

Cys Ser Asn Ser Ser Arg Asp Ser Pro Pro Glu Cys Leu Ser Pro Phe  
130 135 140

Gly Arg Pro Thr Met Ser Gln Phe Asp Met Asp Arg Leu Cys Asp Glu  
145 150 155 160

His Leu Arg Ala Lys Arg Ala Arg Val Glu Asn Ile Ile Arg Gly Met  
165 170 175

Ser His Ser Pro Ser Val Ala Leu Arg Gly Asn Glu Asn Glu Arg Glu  
180 185 190

Met Ala Pro Gln Ser Val Ser Pro Arg Glu Ser Tyr Arg Glu Asn Lys  
195 200 205

Arg Lys Gln Lys Leu Pro Gln Gln Gln Ser Phe Gln Gln Leu  
210 215 220

Val Ser Ala Arg Lys Glu Gln Lys Arg Glu Arg Arg Gln Leu Lys  
225 230 235 240

Gln Gln Leu Glu Asp Met Gln Lys Gln Leu Arg Gln Leu Gln Glu Lys  
245 250 255

Phe Tyr Gln Ile Tyr Asp Ser Thr Asp Ser Glu Asn Asp Glu Asp Gly  
260 265 270

Asn Leu Ser Glu Asp Ser Met Arg Ser Glu Ile Leu Asp Ala Arg Ala  
275 280 285

Gln Asp Ser Val Gly Arg Ser Asp Asn Glu Met Cys Glu Leu Asp Pro  
290 295 300

Gly Gln Phe Ile Asp Arg Ala Arg Ala Leu Ile Arg Glu Gln Glu Met  
305 310 315 320

Ala Glu Asn Lys Pro Lys Arg Glu Gly Asn Asn Lys Glu Arg Asp His  
325 330 335

Gly Pro Asn Ser Leu Gln Pro Glu Gly Lys His Leu Ala Glu Thr Leu  
340 345 350

Lys Gln Glu Leu Asn Thr Ala Met Ser Gln Val Val Asp Thr Val Val  
355 360 365

Lys Val Phe Ser Ala Lys Pro Ser Arg Gln Val Pro Gln Val Phe Pro  
370 375 380 385

Pro Leu Gln Ile Pro Gln Ala Arg Phe Ala Val Asn Gly Glu Asn His  
385 390 395 400

Asn Phe His Thr Ala Asn Gln Arg Leu Gln Cys Phe Gly Asp Val Ile  
405 410 415

Ile Pro Asn Pro Leu Asp Thr Phe Gly Asn Val Gln Met Ala Ser Ser  
420 425 430

Thr Asp Gln Thr Glu Ala Leu Pro Leu Val Val Arg Lys Asn Ser Ser  
435 440 445

Asp Gln Ser Ala Ser Gly Pro Ala Ala Gly Gly His His Gln Pro Leu  
450 455 460

His Gln Ser Pro Leu Ser Ala Thr Thr Gly Phe Thr Thr Ser Thr Phe  
465 470 475 480

Arg His Pro Phe Pro Leu Pro Leu Met Ala Tyr Pro Phe Gln Ser Pro  
485 490 495

Leu Gly Ala Pro Ser Gly Ser Phe Ser Gly Lys Asp Arg Ala Ser Pro  
500 505 510

Glu Ser Leu Asp Leu Thr Arg Asp Thr Thr Ser Leu Arg Thr Lys Met  
515 520 525

Ser Ser His His Leu Ser His His Pro Cys Ser Pro Ala His Pro Pro  
530 535 540

Ser Thr Ala Glu Gly Leu Ser Leu Ser Leu Ile Lys Ser Glu Cys Gly  
545 550 555 560

Asp Leu Gln Asp Met Ser Glu Ile Ser Pro Tyr Ser Gly Ser Ala Met  
565 570 575

Gln Glu Gly Leu Ser Pro Asn His Leu Lys Lys Ala Lys Leu Met Phe  
580 585 590

Phe Tyr Thr Arg Tyr Pro Ser Ser Asn Met Leu Lys Thr Tyr Phe Ser  
595 600 605

Asp Val Lys Phe Asn Arg Cys Ile Thr Ser Gln Leu Ile Lys Trp Phe  
610 615 620

Ser Asn Phe Arg Glu Phe Tyr Tyr Ile Gln Met Glu Lys Tyr Ala Arg  
625 630 635 640

Gln Ala Ile Asn Asp Gly Val Thr Ser Thr Glu Glu Leu Ser Ile Thr  
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Arg Asp Cys Glu Leu Tyr Arg Ala Leu Asn Met His Tyr Asn Lys Ala  
660 665 670

Asn Asp Phe Glu Val Pro Glu Arg Phe Leu Glu Val Ala Gln Ile Thr  
675 680 685

Leu Arg Glu Phe Phe Asn Ala Ile Ile Ala Gly Lys Asp Val Asp Pro  
690 695 700

Ser Trp Lys Lys Ala Ile Tyr Lys Val Ile Cys Lys Leu Asp Ser Glu  
705 710 715 720

Val Pro Glu Ile Phe Lys Ser Pro Asn Cys Leu Gln Glu Leu Leu His  
725 730 735

Glu